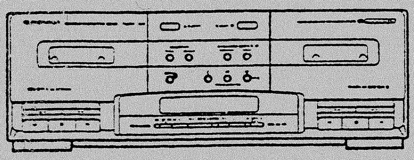
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
ARP2640

STEREO DOUBLE CASSETTE TAPE DECK

CT-J410WR
CT-J310WR

CT–J410WR AND CT–J310WR HAVE THE FOLLOWING:

Type	Model		Power Requirement	Remarks
	CT–J410WR	CT–J310WR		
AEM	○	○	AC power supplied from power transformer's secondary of other system component	
AB	○	○		
ADL	○	○		

- This manual is applicable to the following: CT–J410WR/AEM, AB and ADL; CT–J310WR/AEM, AB and ADL.
- These products are systems components.
  Each of these products does not function properly when independent; to avoid malfunctions, be sure to connect it to the prescribed system component (s), otherwise damage may result.
  These products' instructions are contained within the instruction manual of the related system component (s).
  The manual is packed with those component (s).
  These products' accessories etc. are packed with their related component (s).

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1. EXPLODED VIEWS AND PARTS LIST

1.1 EXTERIOR

NOTES:

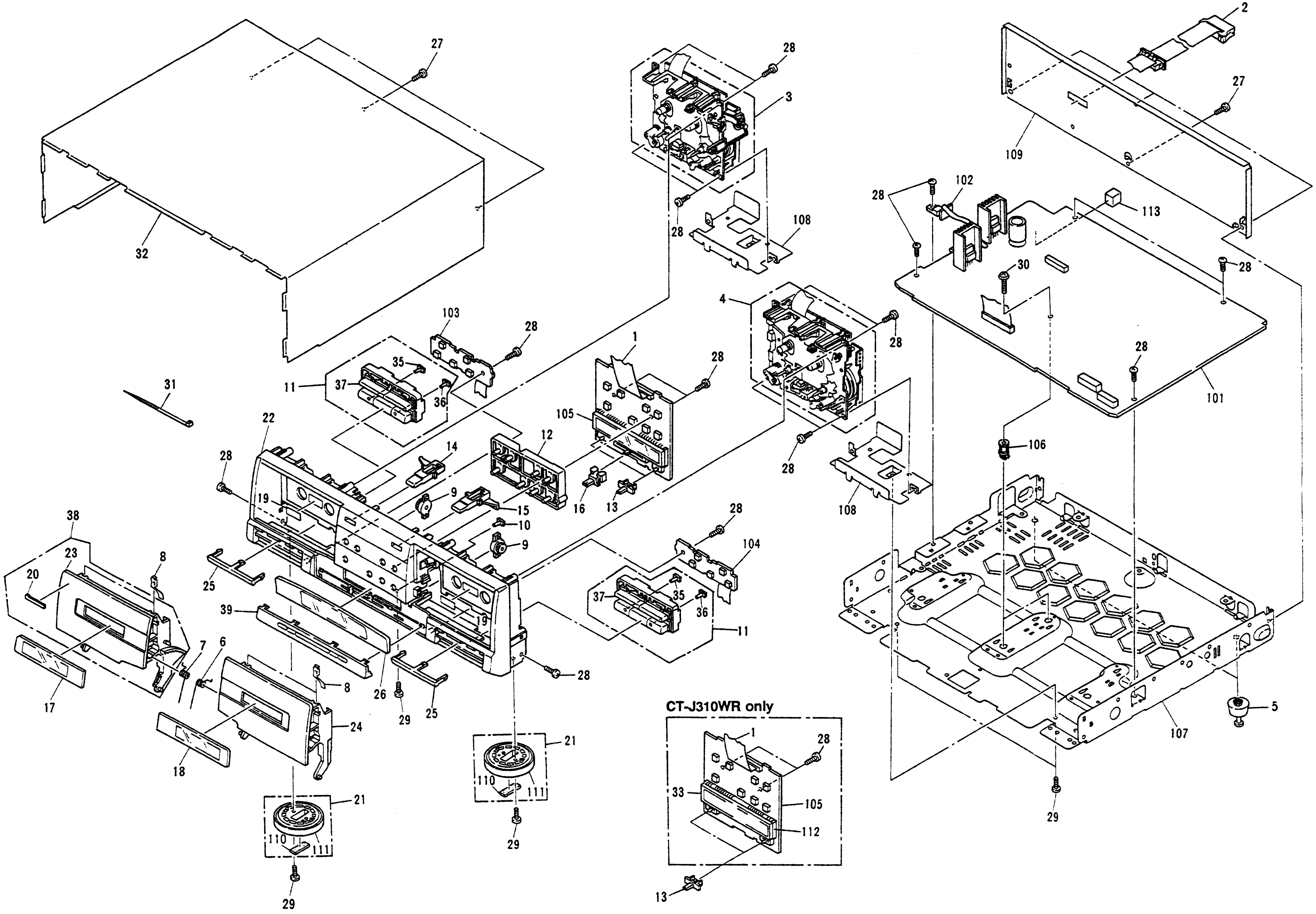
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts List

Mark	No.	Description	Part No.
	1	Lead card (30P) (CT-J410WR)	RDD1261
		Lead card (28P) (CT-J310WR)	RDD1263
	2	Connector assembly (15P)	RKP1358
⊙	3	Mechanism unit 1	RYM1191
⊙	4	Mechanism unit 2 (CT-J410WR)	RYM1192
⊙		Mechanism unit 2 (CT-J310WR)	RYM1193
	5	Leg assembly (S)	AMR1937
	6	Door spring R	RBH1329
	7	Door spring L	RBH1328
	8	Half pressure spring	RBK1004
	9	Damper assembly	VXA1153
	10	Indicator lens	RNK1591
	11	Operation button Ass'y (CT-J410WR)	RXA1506
		Operation button Ass'y (CT-J310WR)	RXA1535
	12	Center knob	RAC1732
	13	Slide SW knob	RAC1774
	14	Eject knob L	RAC1767
	15	Eject knob R	RAC1768
	16	Slide VR knob (CT-J410WR)	RAC1737
	17	Door lens L	RAH2115
	18	Door lens R	RAH2114
	19	Remaining sheet	REE – 113
	20	Name plate	AAM1047
	21	Foot assembly	RXA1448
	22	Front panel (CT-J410WR)	RAH2106
		Front panel (CT-J310WR)	RAH2117
	23	Door panel L (CT-J410WR)	RAH2108
		Door panel L (CT-J310WR)	RAH2118
	24	Door panel R (CT-J410WR)	RAH2109
		Door panel R (CT-J310WR)	RAH2119
	25	Azimuth cover	RNK1849
	26	FL lens (CT-J410WR)	RAH2167
		FL lens (CT-J310WR)	RAH2120
	27	Screw	BBZ30P060FZK
	28	Screw	BBZ30P080FMC
	29	Screw	BBZ30P100FZK
	30	Screw	IBZ30P150FCU
	31	Cord clamper	REC – 371
	32	Bonnet assembly	REA1031
	33	LED lens (CT-J310WR)	RAH2015
	34	......	
NSP	35	Indicator lens A (CT-J410WR)	RNK1850
NSP		Indicator lens A (CT-J310WR)	RNK1888
NSP	36	Indicator lens B (CT-J410WR)	RNK1851
NSP		Indicator lens B (CT-J310WR)	RNK1889
	37	Operation knob	RAC1766
	38	Door L Ass'y (CT-J410WR)	REA1052
		Door L Ass'y (CT-J310WR)	REA1051
	39	Sub panel (CT-J410WR)	RAH2113
		Sub panel (CT-J310WR)	RAH2123
	101	Main unit (CT-J410WR)	RWZ2710
		Main unit (CT-J310WR)	RWZ2705
NSP	102	Transistor unit	RWZ2711
NSP	103	Operate 1 unit (CT-J410WR)	RWZ2713
NSP		Operate 1 unit (CT-J310WR)	RWZ2708
NSP	104	Operate 2 unit (CT-J410WR)	RWZ2714
NSP		Operate 2 unit (CT-J310WR)	RWZ2709
	105	Display unit (CT-J410WR)	RWZ2712
		Display unit (CT-J310WR)	RWZ2707
NSP	106	PCB spacer	PNY – 404
NSP	107	Main chassis	RNB1072
NSP	108	Mechanism shield plate	RNE1503
NSP	109	Rear panel (CT-J410WR/AB)	RNA1605
NSP		Rear panel (CT-J410WR/AEM, ADL)	RNA1653
NSP		Rear panel (CT-J310WR/AB)	RNA1606
NSP		Rear panel (CT-J310WR/AEM, ADL)	RNA1654
NSP	110	Cushion	REB1091
NSP	111	Foot	RNK1770
NSP	112	LED holder (CT-J310WR)	RNK1810
NSP	113	Unit spacer	PEB1164

Exterior

NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.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111
29
CT-J310WR only
1
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105
112
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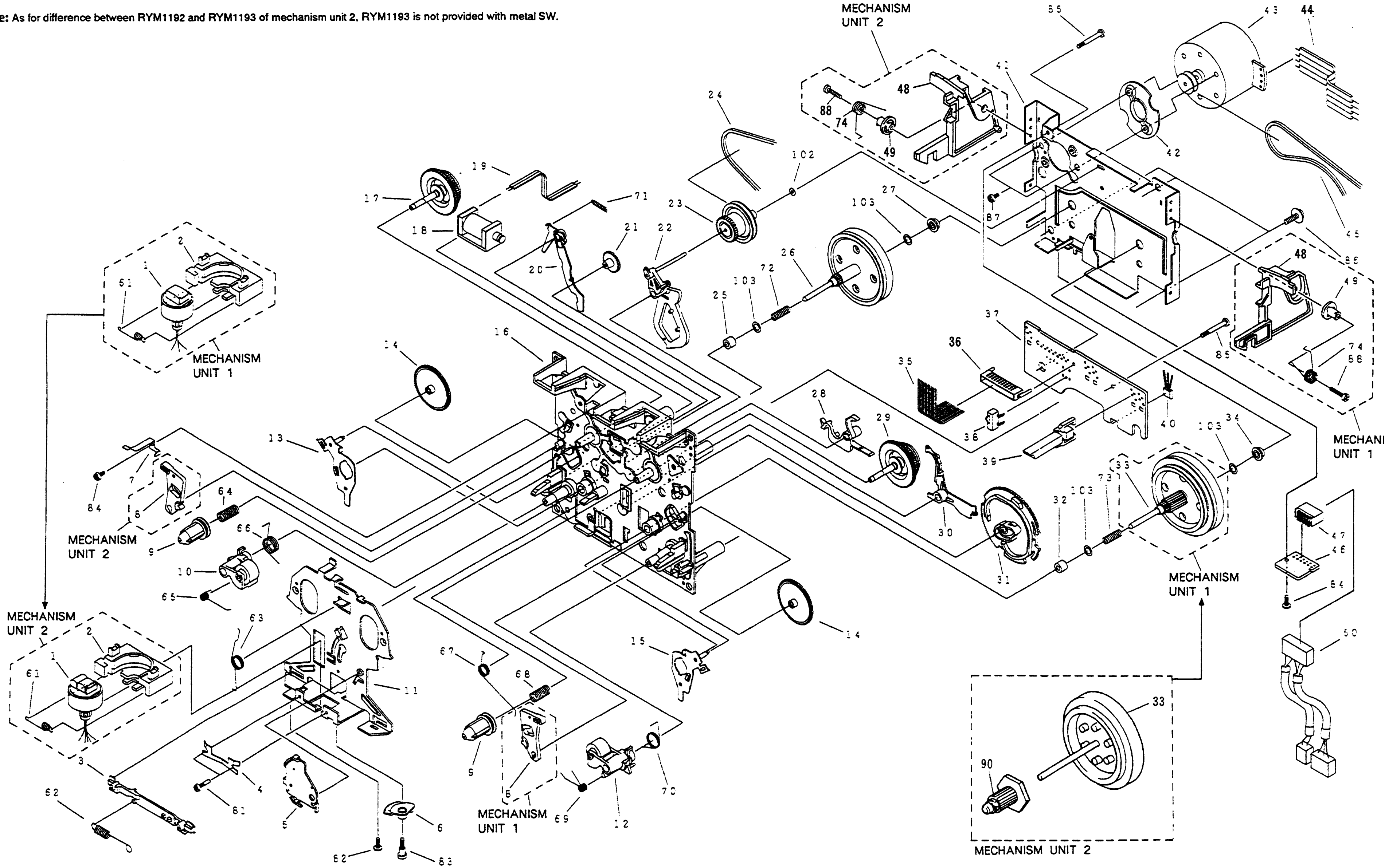
107
29

1.2 MECHANISM UNIT 1 (RYM1191): CT–J410WR and CT–J310WR
MECHANISM UNIT 2 (RYM1192): CT–J410WR
MECHANISM UNIT 2 (RYM1193): CT–J310WR

Note: As for difference between RYM1192 and RYM1193 of mechanism unit 2, RYM1193 is not provided with metal SW.


MECHANISM UNIT 2
55
43
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48
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103
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1
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MECHANISM UNIT 1
20
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103
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103
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MECHANISM UNIT 1
13
7
84
8
64
MECHANISM UNIT 2
9
66
10
65
30
33
73
103
32
31
47
46
84
MECHANISM UNIT 1
63
15
14
50
MECHANISM UNIT 2
2
1
61
11
67
68
33
90
9
3
4
81
5
6
62
82
83
8
MECHANISM UNIT 1
69
12
70
MECHANISM UNIT 2

Parts List

Mark	No.	Description	Part No.
	1	ASS'Y HOLDER HEAD (Mechanism unit 2)	RXA1477
		ASS'Y HOLDER HEAD (Mechanism unit 1)	RXA1500
	2	FLAME HEAD	RNK1715
	3	LEVER HEAD	RNK1716
	4	SPRING AZIMUTH	RBK1006
	5	ASS'Y ARM ASSIST	RXA1401
	6	GEAR ARM HEAD	RNK1717
	7	SPRING CASSETTE	RBK1039
	8	EJECT LOCK	RNK1718
	9	CAP REEL	RNK1719
	10	ASS'Y PINCH ARM L	RXA1403
	11	CHASSIS HEAD	RNE1437
	12	ASS'Y PINCH ARM R	RXA1404
	13	ARM PLAY L	RNK1866
	14	GEAR PLAY	RNK1867
	15	ARM PLAY R	RNK1868
	16	CHASSIS OS.	RXA1411
	17	ASS'Y SUB REEL L	RXA1407
⚠	18	SOLENOID	RXP1020
	19	WIRE	RDC1006
	20	ARM RVS	RNK1721
	21	GEAR FF	RNK1723
	22	ASS'Y ARM FR	RXA1412
	23	ASS'Y PULLEY FR	RXA1413
	24	BELT FR	REB1158
	25	METAL	RNG1048
	26	ASS'Y FLYWHEEL L (Mechanism unit 1)	RXA1423
		ASS'Y FLYWHEEL L (Mechanism unit 2)	RXA1476
	27	METAL	RNG1005
	28	ARM BRAKE	RNK1724
	29	ASS'Y SUB REEL R	RXA1408
	30	ARM TRIGGER	RNK1722
	31	GEAR CAM	RNK1725
	32	METAL	RNG1049
	33	ASS'Y FLYWHEEL R (Mechanism unit 1)	RXA1424
		ASS'Y FLYWHEEL R (Mechanism unit 2)	RXA1415
	34	METAL	RNG1004
	35	WIRE (14P) (Mechanism unit 2)	RDD1217
		WIRE (12P) (Mechanism unit 1)	RDD1249
	36	HOLDER WIRE	RNK1683
	37	P.C. BOARD	RNP1436
	38	SWITCH MODE	RSN1020
	39	SWITCH (LEAF)	RSN1019
	40	HALL IC.	DN6851A
	41	BRACKET FW	RNE1438
	42	SPACER	RNK1822
	43	ASS'Y MOTOR (Mechanism unit 2)	RXM1063
		ASS'Y MOTOR (Mechanism unit 1)	RXM1062
	44	WIRE	RDD1012
	45	BELT MAIN (Mechanism unit 1)	REB1159
		BELT MAIN (Mechanism unit 2)	REB1162
	46	P.C. BOARD	RNP1348
	47	HOUSING (Mechanism unit 2)	RKP1397
		HOUSING (Mechanism unit 1)	RKP1396
	48	EJECT LEVER L (Mechanism unit 2)	RNK1702
		EJECT LEVER R (Mechanism unit 1)	RNK1703
	49	COLLAR	RNK1704
	50	WIRE HEAD (Mechanism unit 2)	RKP1502
		WIRE HEAD (Mechanism unit 1)	RKP1501
	61	SPRING	RBH1282
	62	SPRING	RBH1283
	63	SPRING	RBH1284
	64	SPRING	RBH1286
	65	SPRING	RBH1288
	66	SPRING	RBH1291
	67	SPRING	RBH1285
	68	SPRING	RBH1287
	69	SPRING	RBH1289
	70	SPRING	RBH1290
	71	SPRING	RBH1292
	72	SPRING	RBH1061
	73	SPRING	RBH1325
	74	SPRING (L) (Mechanism unit 2)	RBH1294
		SPRING (R) (Mechanism unit 1)	RBH1293
	81	SCREW	RBA1023
	82	SCREW	RBA1027
	83	SCREW	RBA1030
	84	SCREW	PCZ20P040FMC
	85	SCREW	RBA1093
	86	SCREW	RBA1094
	87	SCREW	RBA1100
	88	SCREW	RBA1095
	89	······	
	90	GEAR FW R (Mechanism unit 2)	RNK1733
	101	······	
	102	WASHER	RBF1046
	103	WASHER	WA26D047D013

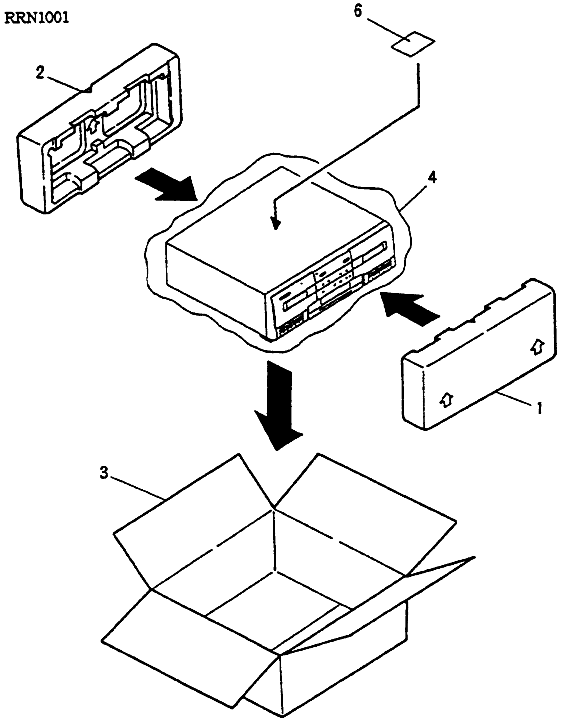
---

2. PACKING AND PARTS LIST

NOTES:
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The iustruction manual is packed with the units of M–J310 and M–J410.

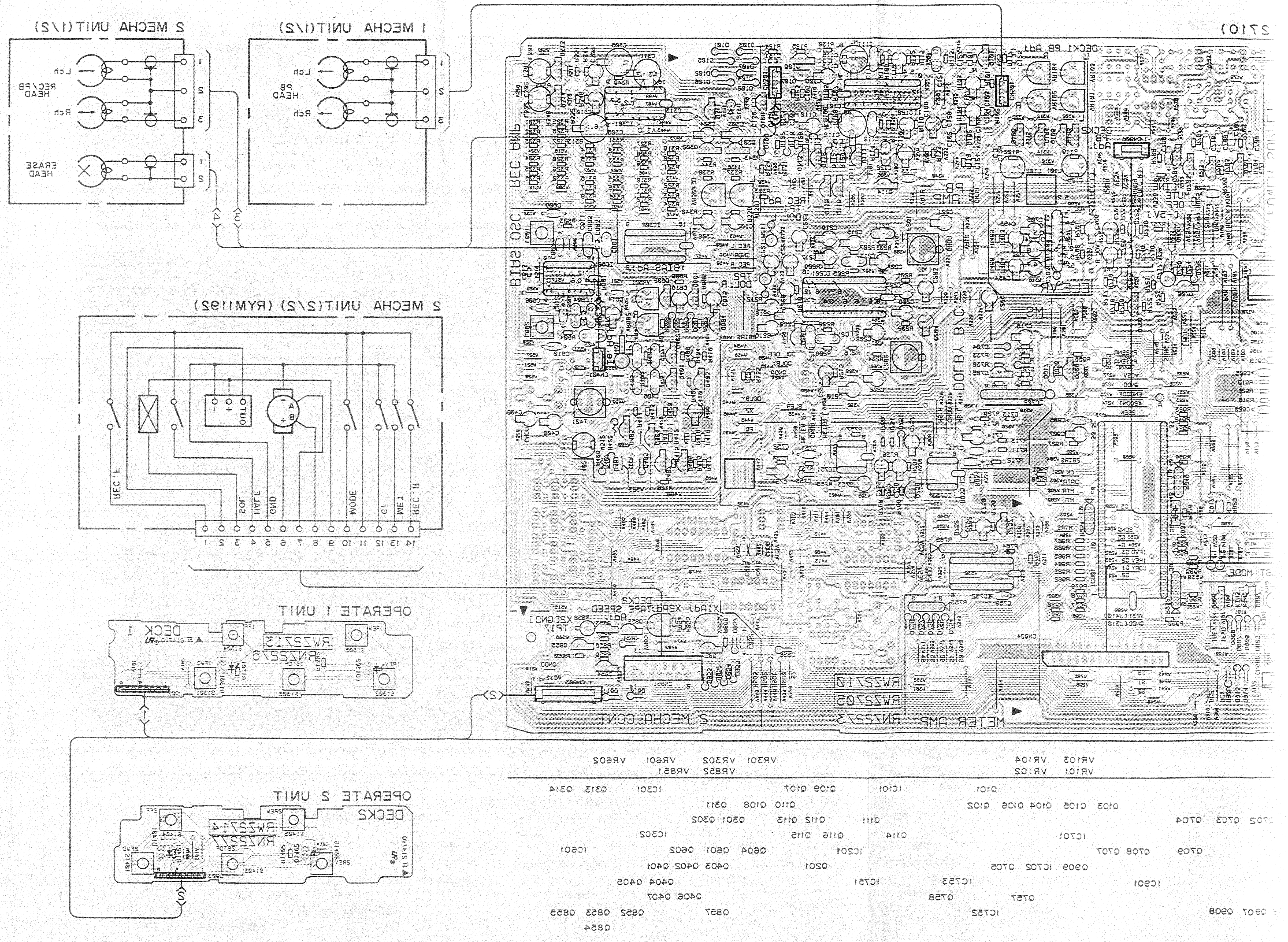
Parts List

Mark	No.	Description	Part No.
	1	Pad (F)	RHA1100
	2	Pad (R)	RHA1102
	3	Packing case (CT-J410WR/AB, AEM)	RHG1393
		Packing case (CT-J410WR/ADL)	RHG1424
		Packing case (CT-J310WR/AB, AEM)	RHG1394
		Packing case (CT-J310WR/ADL)	RHG1425
	4	Sheet	RHX1006
	5	······	
	6	Caution card (CT-J410WR/AB, CT-J310WR/AB only)	RRN1001

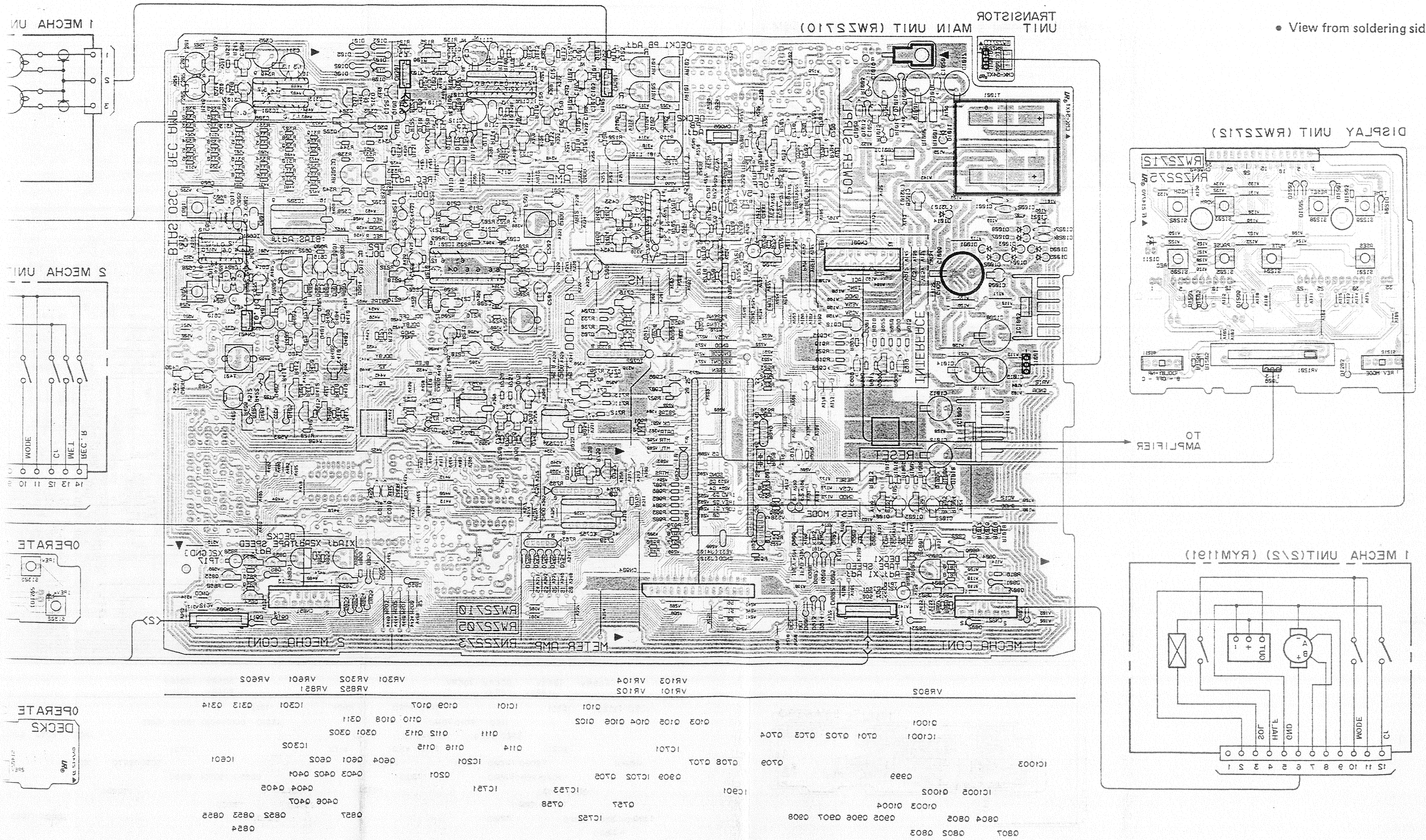


3. PCB CONNECTION AND SCHEMATIC DIAGRAM

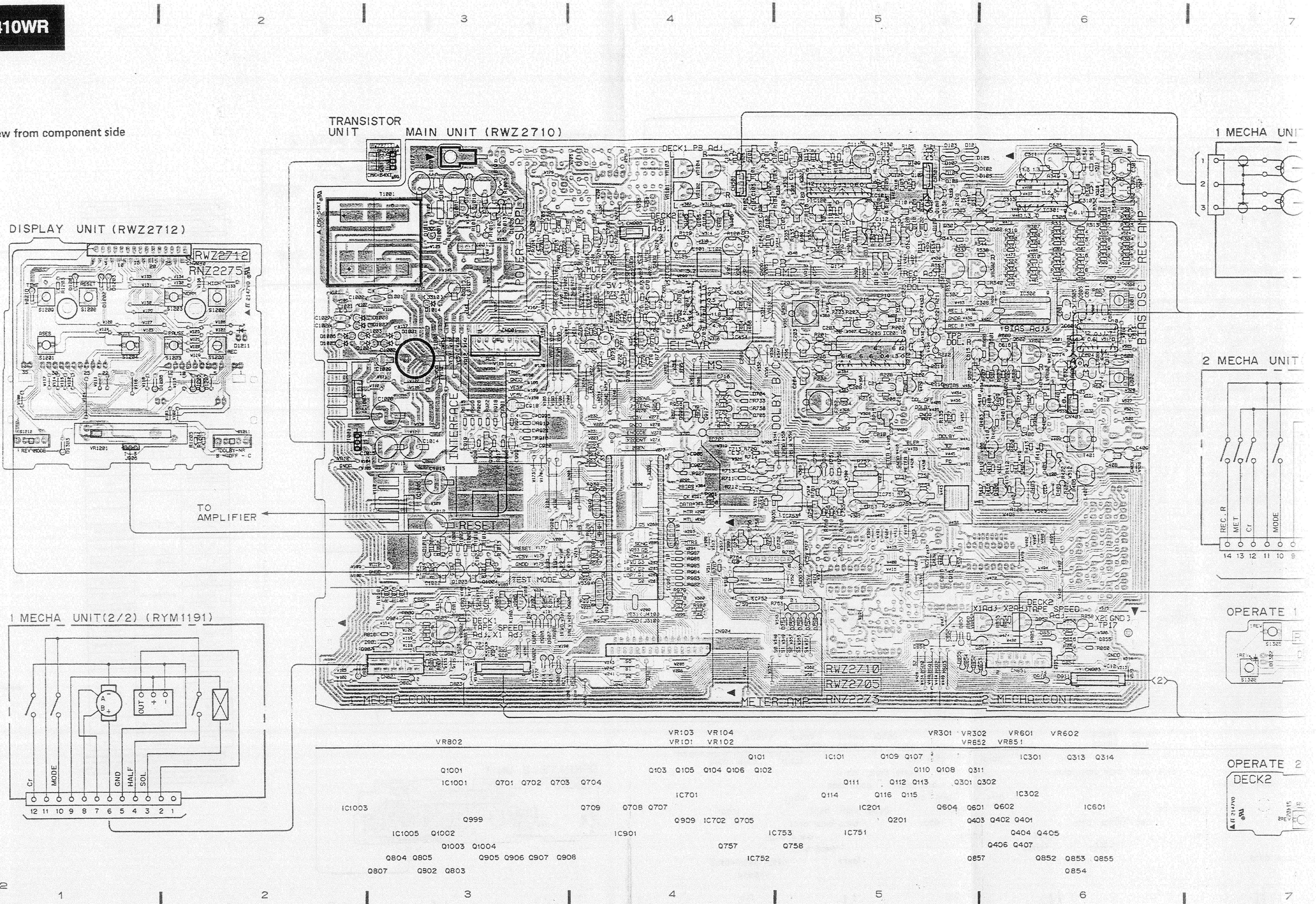
1. FOR CT–410WR


2 MECHA UNIT(1/2)
1 MECHA UNIT(1/2)
REC/PB HEAD
PB HEAD
ERASE HEAD
Lch
Rch
2 MECHA UNIT(2/2) (RYM1192)
REC.F
SOL
HALF
GND
MODE
MET
REC.R
OPERATE 1 UNIT
DECK 1
RWZ2713
RNZ2276
OPERATE 2 UNIT
DECK2
RWZ2714
RNZ2277
REC AMP
BIAS OSC
PB AMP
DOLBY B NC
DECK1 PB Adj
METER AMP
2 MECHA CONT
RWZ2710
RWZ2709
RNZ2273
Z710

• View from soldering side


TRANSISTOR UNIT
MAIN UNIT (RWZ2710)
DISPLAY UNIT (RWZ2712)
1 MECHA UNIT(2/2) (RYM1191)
TO AMPLIFIER
1 MECHA UNIT
2 MECHA UNIT
OPERATE
DECK2
REC AMP
BIAS OSC
POWER SUPPLY
INTERFACE
DOLBY NR
RESET
TEST MODE
METER AMP
1 MECHA CONT
2 MECHA CONT
RWZ2710
RWZ2705
RNZ2273
RWZ2712
RNZ2275
MODE
CT
JOG
HALF
GND
A
B
C
D

- View from component side


1
2
3
4
5
6
7
TRANSISTOR UNIT
MAIN UNIT (RWZ2710)
DISPLAY UNIT (RWZ2712)
RWZ2712
RNZ2275
TO AMPLIFIER
1 MECHA UNIT(2/2) (RYM1191)
Cr
MODE
GND
HALF
SOL
OUT
12 11 10 9 8 7 6 5 4 3 2 1
1 MECHA UNIT
2 MECHA UNIT
REC. R
MET
Cr
MODE
14 13 12 11 10 9
OPERATE 1
OPERATE 2
DECK2
POWER SUPPLY
INTERFACE
RESET
TEST MODE
MUTE OFF
ELE VR
MS
DOLBY B/C
DECK1 PB Adj
DECK2 PB Adj
PB AMP
REC AMP
BIAS OSC
BIAS Adj
DECK1 TAPE SPEED Adj X1 Adj
DECK2 TAPE SPEED Adj X1Adj X2Adj
1 MECHA CONT
METER AMP
2 MECHA CONT
RWZ2710
RWZ2705
RNZ2273
VR802
VR103 VR104
VR101 VR102
VR301 VR302 VR601 VR602
VR852 VR851
Q101
IC101
Q109 Q107
IC301
Q313 Q314
Q1001
Q103 Q105 Q104 Q106 Q102
Q110 Q108 Q311
IC1001
Q701 Q702 Q703 Q704
Q111
Q112 Q113
Q301 Q302
IC701
Q114
Q116 Q115
IC302
IC1003
Q709
Q708 Q707
IC201
Q604 Q601 Q602
IC601
Q999
Q909 IC702 Q705
Q201
Q403 Q402 Q401
IC1005 Q1002
IC901
IC753
IC751
Q404 Q405
Q1003 Q1004
Q757
Q758
Q406 Q407
Q804 Q805
Q905 Q906 Q907 Q908
IC752
Q857
Q852 Q853 Q855
Q854
Q807
Q802 Q803

4
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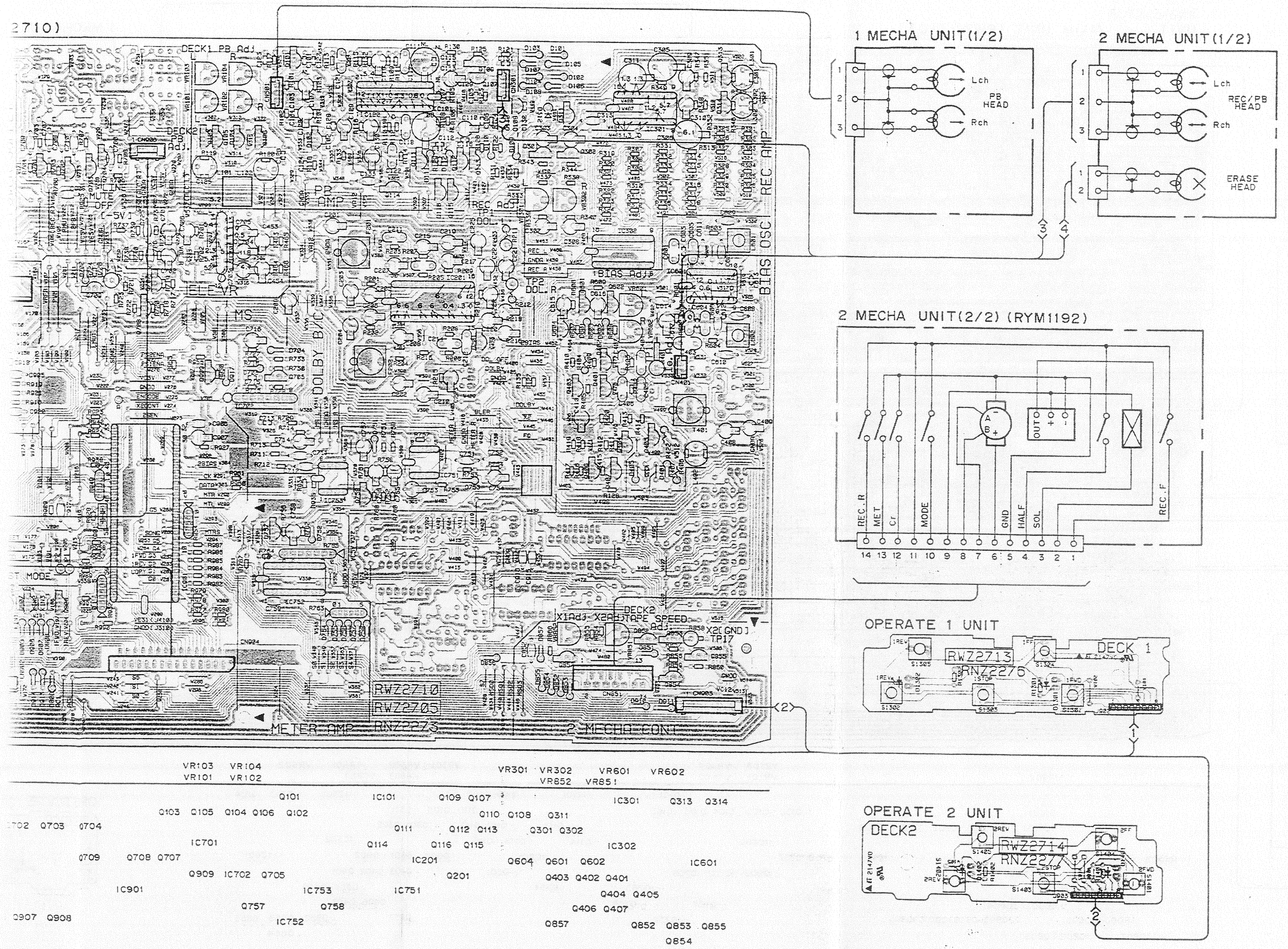
2710)
DECK1 PB Adj
DECK2 PB Adj
PB AMP
REC AMP
BIAS OSC
REC DOL.L
DOL.R
BIAS Adj.
TP2
DOLBY B/C
ELE.VR
MS
ST MODE
DECK2 TAPE SPEED Adj.
X1Adj
X2Adj
X2[GND]
TP17
RWZ2710
RWZ2705
RNZ2273
METER AMP
2 MECHA CONT
1 MECHA UNIT(1/2)
Lch
Rch
PB HEAD
2 MECHA UNIT(1/2)
REC/PB HEAD
ERASE HEAD
2 MECHA UNIT(2/2) (RYM1192)
REC.R
MET
Cr
MODE
GND
HALF
SOL
REC.F
14 13 12 11 10 9 8 7 6 5 4 3 2 1
OPERATE 1 UNIT
DECK 1
RWZ2713
RNZ2276
OPERATE 2 UNIT
DECK2
RWZ2714
RNZ2277
VR103 VR104
VR101 VR102
VR301 VR302 VR601 VR602
VR852 VR851
Q101
Q103 Q105 Q104 Q106 Q102
IC101
Q109 Q107
Q110 Q108 Q311
IC301
Q313 Q314
Q111 Q112 Q113 Q301 Q302
Q702 Q703 Q704
IC701
Q114 Q116 Q115
IC302
Q709 Q708 Q707
IC201
Q604 Q601 Q602
IC601
Q909 IC702 Q705
Q201
Q403 Q402 Q401
IC901
IC753
IC751
Q404 Q405
Q757 Q758
Q406 Q407
Q907 Q908
IC752
Q857
Q852 Q853 Q855
Q854

A
B
C
D
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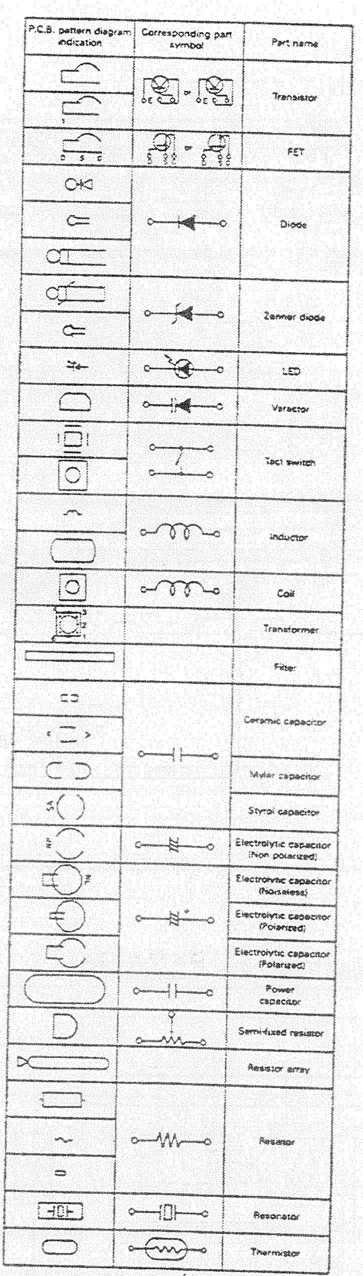
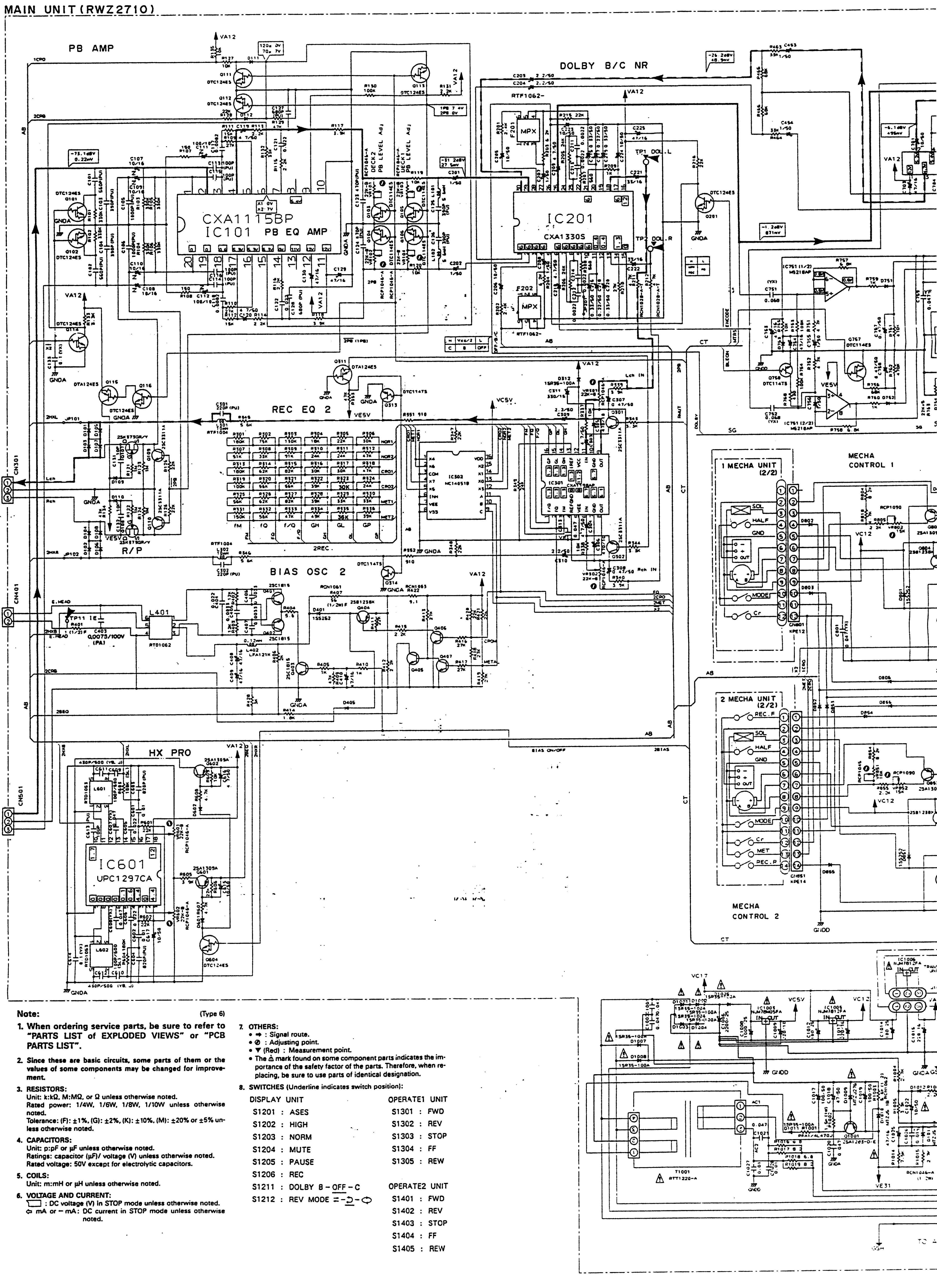


P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

MAIN UNIT (RWZ2710)


PB AMP
CXA1115BP
IC101 PB EQ AMP
DOLBY B/C NR
IC201
CXA1330S
TP1 DOL.L
TP2 DOL.R
MPX
F201
F202
RTF1062-
REC EQ 2
IC502
MC14051B
IC501
CXA1158AP
BIAS OSC 2
L401
HX PRO
IC601
UPC1297CA
R/P
2 MECHA UNIT (1/2)
REC/PB HEAD
RPB1016
RYM1192
E.HEAD
RPB1002
1 MECHA UNIT (1/2)
PB.HEAD
RPB1016
RYM1191
CN301
CN401
CN501
1 MECHA UNIT (2/2)
2 MECHA UNIT (2/2)
MECHA CONTROL 1
MECHA CONTROL 2
SOL
HALF
GND
MODE
Cr
MET
REC.F
REC.P
CN801
KPE12
CN851
KPE14
VA12
VC5V
VE5V
GNDA
GNDD
AB
CT
IC1005
IC1006
T1001
RTT1220-A
VC17
VC12
VE31

Note: (Type 6)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**

2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**

3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.

4. **CAPACITORS:**
   Unit: p:pF or µF unless otherwise noted.
   Ratings: capacitor (µF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.

5. **COILS:**
   Unit: m:mH or µH unless otherwise noted.

6. **VOLTAGE AND CURRENT:**
   ▭ : DC voltage (V) in STOP mode unless otherwise noted.
   ⇦ mA or − mA: DC current in STOP mode unless otherwise noted.

7. **OTHERS:**
   - ➡ : Signal route.
   - ⊘ : Adjusting point.
   - ▼ (Red) : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

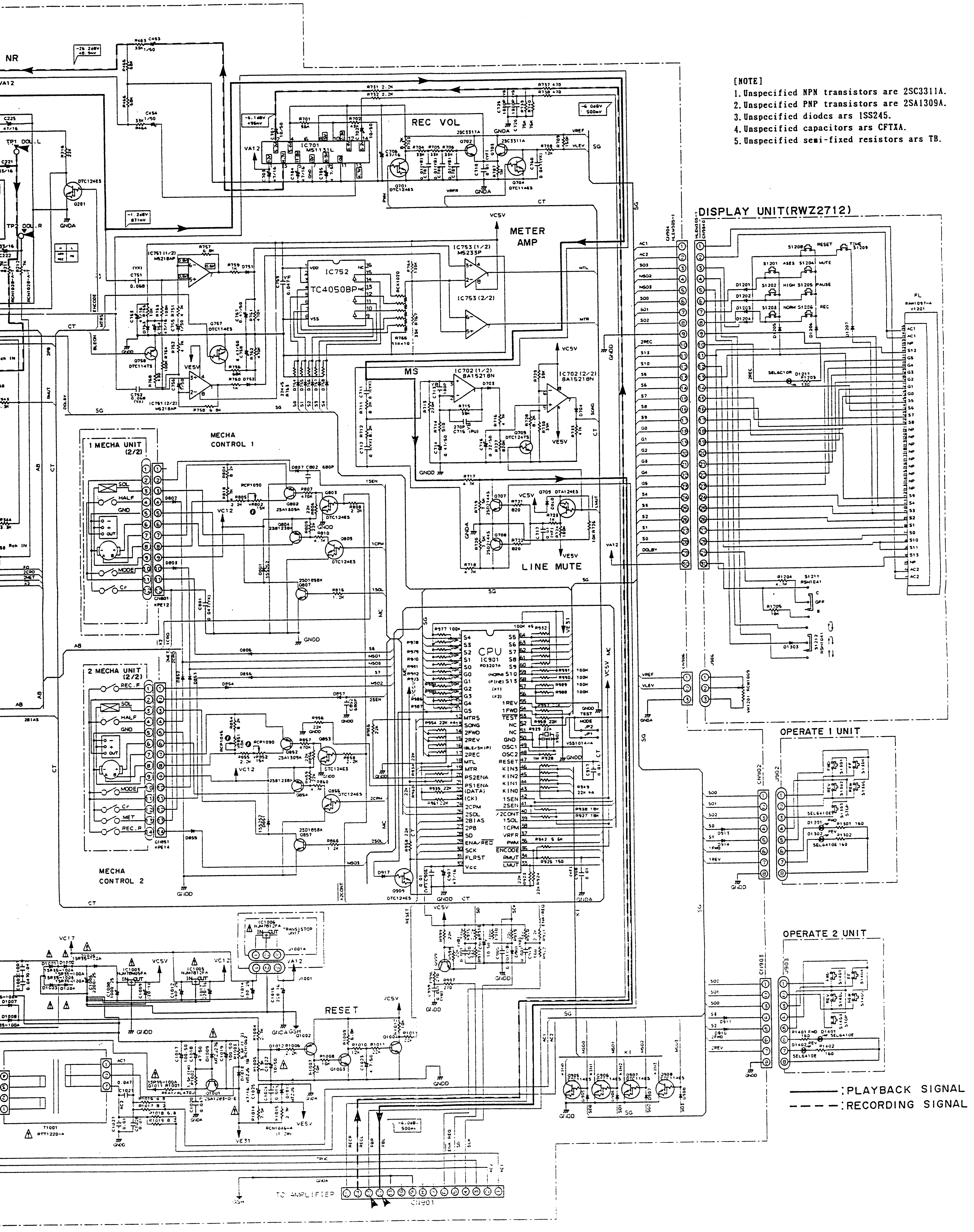
8. **SWITCHES** (Underline indicates switch position):

DISPLAY UNIT
S1201 : ASES
S1202 : HIGH
S1203 : NORM
S1204 : MUTE
S1205 : PAUSE
S1206 : REC
S1211 : DOLBY B − OFF − C
S1212 : REV MODE ⇄ − ⊃ − ⟲

OPERATE1 UNIT
S1301 : FWD
S1302 : REV
S1303 : STOP
S1304 : FF
S1305 : REW

OPERATE2 UNIT
S1401 : FWD
S1402 : REV
S1403 : STOP
S1404 : FF
S1405 : REW

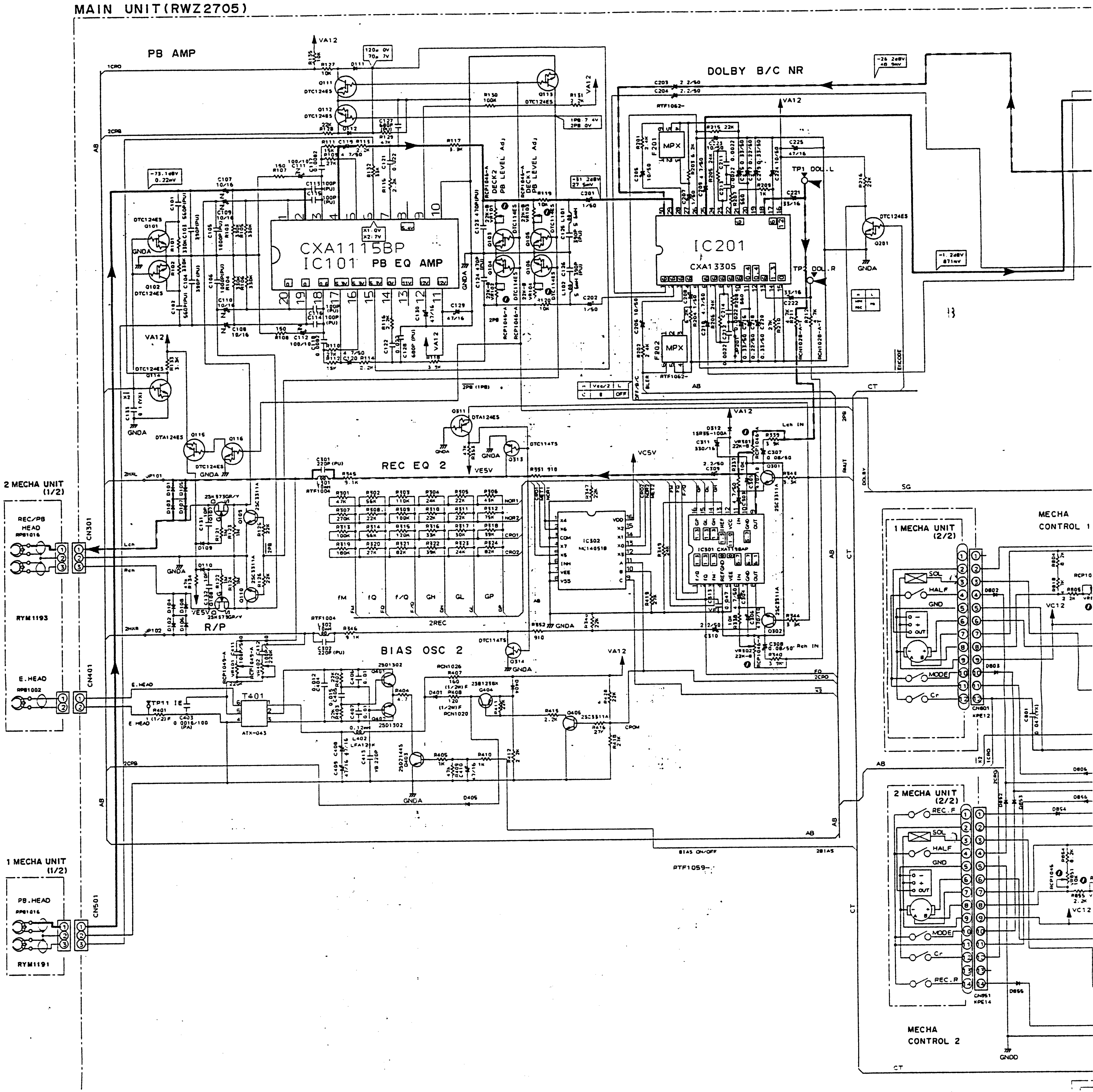
[NOTE]
1. Unspecified NPN transistors are 2SC3311A.
2. Unspecified PNP transistors are 2SA1309A.
3. Unspecified diodes ars 1SS245.
4. Unspecified capacitors ars CFTXA.
5. Unspecified semi-fixed resistors ars TB.

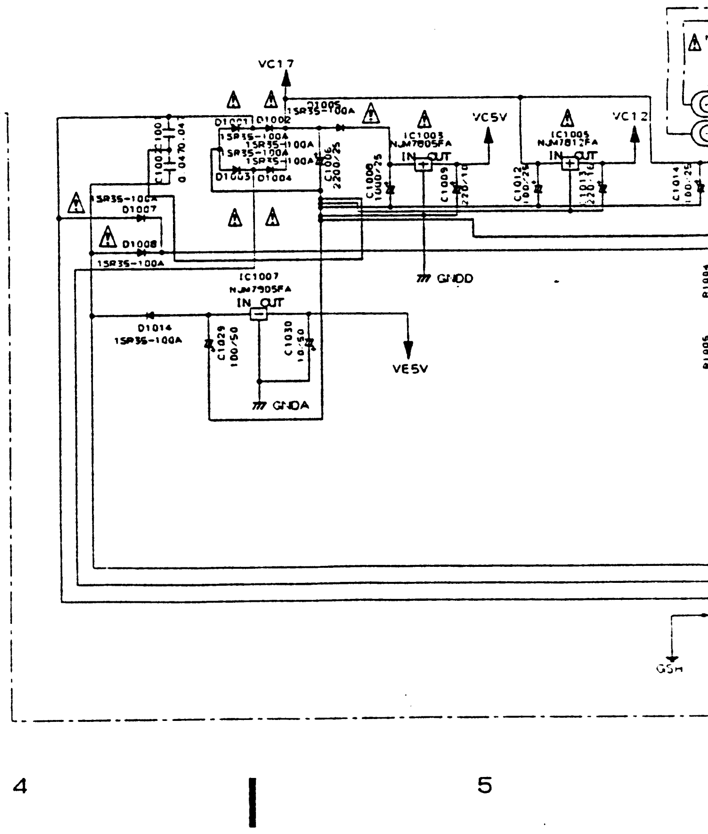


NR
REC VOL
IC701 M5113L
METER AMP
IC751 M5218AP
IC752 TC4050BP
IC753 M5235P
IC702 BA15218N
MS
LINE MUTE
1 MECHA UNIT (2/2)
MECHA CONTROL 1
2 MECHA UNIT (2/2)
MECHA CONTROL 2
CPU IC901 PD5207A
DISPLAY UNIT(RWZ2712)
OPERATE 1 UNIT
OPERATE 2 UNIT
RESET
IC1006 NJM7812FA
IC1003 NJM78M05FA
IC1005 NJM7812FA
T1001 RTT1220-A
TO AMPLIFIER
CN901
SOL
HALF
GND
MODE
Cr
MET
REC.F
REC.P
GNDD
GNDA
VC5V
VE5V
VA12
VC12
SG
CT

———— : PLAYBACK SIGNAL
– – – – : RECORDING SIGNAL

FOR CT-J310WR


MAIN UNIT(RWZ2705)
PB AMP
CXA1115BP
IC101 PB EQ AMP
DOLBY B/C NR
IC201
CXA1330S
MPX
F201
F202
TP1 DOL.L
TP2 DOL.R
REC EQ 2
IC502
MC14051B
IC501 CXA1135AP
BIAS OSC 2
T401
ATX-043
R/P
2REC
VA12
VC5V
VE5V
GNDA
2 MECHA UNIT (1/2)
REC/PB HEAD
RPB1016
RYM1193
CN301
E.HEAD
RPB1002
CN401
1 MECHA UNIT (1/2)
PB.HEAD
RPB1016
RYM1191
CN501
MECHA CONTROL 1
1 MECHA UNIT (2/2)
SOL
HALF
GND
MODE
Cr
CN801
KPE12
2 MECHA UNIT (2/2)
REC.F
REC.R
CN851
KPE14
MECHA CONTROL 2
GNDD
DECK2 PB LEVEL Adj
DECK1 PB LEVEL Adj
BIAS ON/OFF
RTF1059
RTF1062
RTF1004
fM
fQ
f/Q
GH
GL
GP
AB
CT
SG
2PB
1PB
Lch
Rch
Lch IN
Rch IN


VC17
VC5V
VC12
VE5V
GNDD
GNDA
IC1005 NJM7805FA
IC1003 NJM7812FA
IC1007 NJM7805FA
IN OUT
D1001
D1002
D1003
D1004
D1007
D1008
D1014
1SR35-100A
1SS35-100A
C1029
C1030

Note: (Type 6)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**

2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.

3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.

4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.

5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.

6. **VOLTAGE AND CURRENT:**
   ▭ : DC voltage (V) in STOP mode unless otherwise noted.
   ⇦ mA or ← mA: DC current in STOP mode unless otherwise noted.

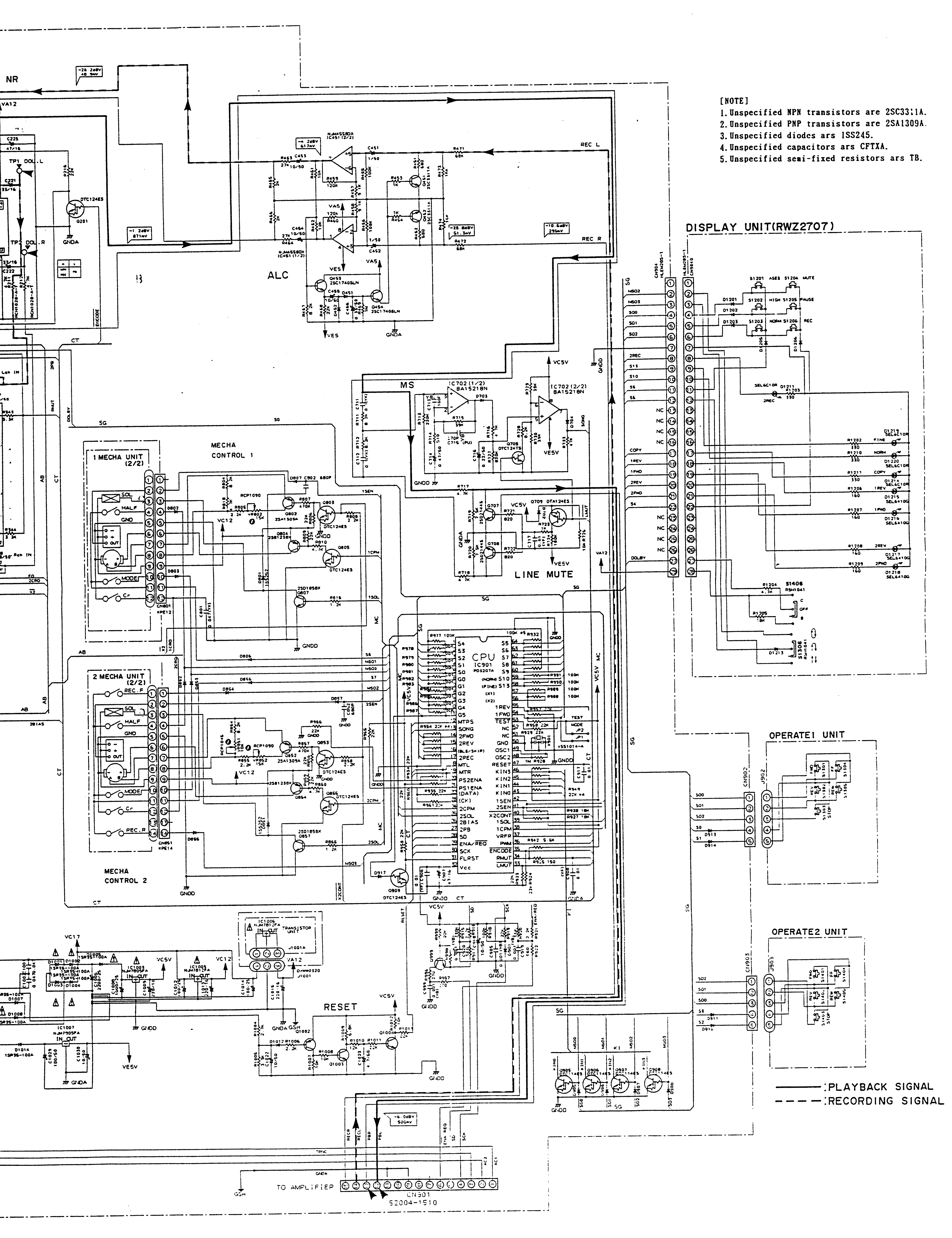
7. **OTHERS:**
   - ➡ : Signal route.
   - ⊘ : Adjusting point.
   - ▼ (Red) : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

8. **SWITCHES** (Underline indicates switch position):

DISPLAY UNIT
S1201 : ASES
S1202 : HIGH
S1203 : NORM
S1204 : MUTE
S1205 : PAUSE
S1206 : REC
S1306 : DOLBY B − OFF − C
S1406 : REV MODE ⇄ − ⊃ − ◯

OPERATE1 UNIT
S1301 : FWD
S1302 : REV
S1303 : STOP
S1304 : FF
S1305 : REW

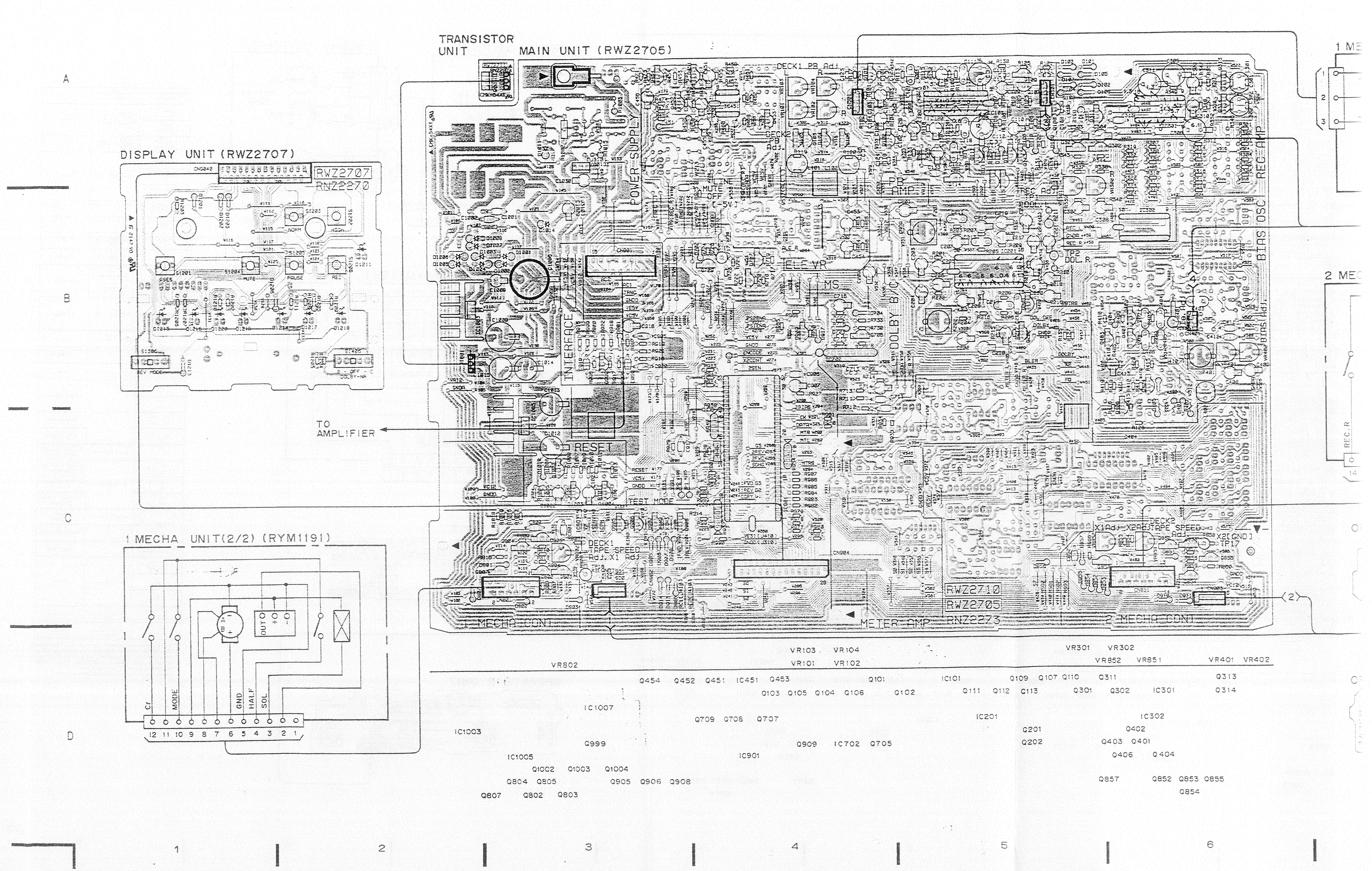
OPERATE2 UNIT
S1401 : FWD
S1402 : REV
S1403 : STOP
S1404 : FF
S1405 : REW

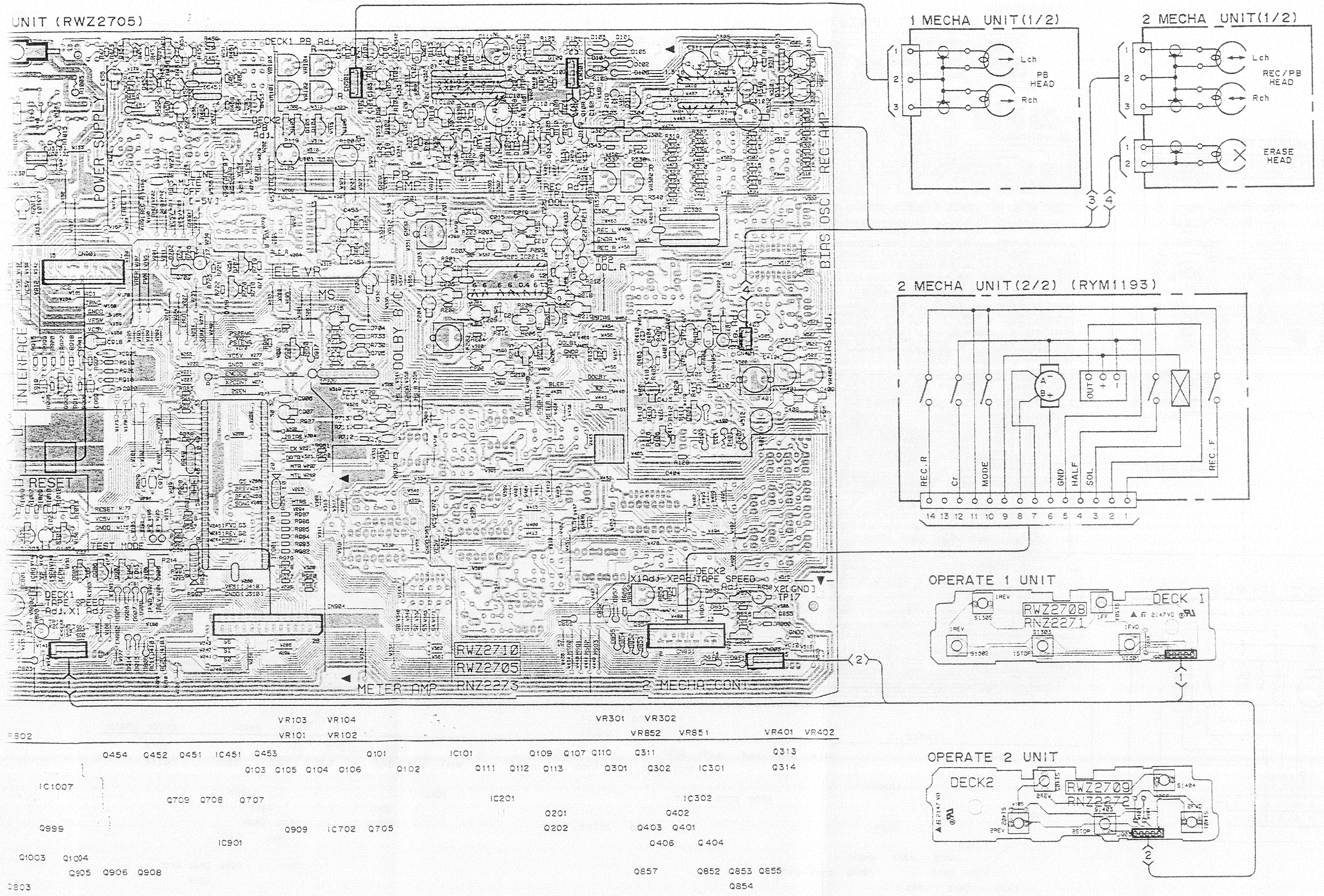

5
6
7
8
9
NR
VA12
TP1 DOL.L
TP2 DOL.R
DTC124ES
Q201
GNDA
ALC
NJM4558DX IC451 (2/2)
NJM4558DX IC451 (1/2)
REC L
REC R
Q453 2SC1740SLN
Q454 2SC1740SLN
VES
VA5
ENCODE
CT
SG
DOLBY
MS
IC702 (1/2) BA15218N
IC702 (2/2) BA15218N
VC5V
VE5V
LINE MUTE
Q709 DTA124ES
LMUT
MECHA CONTROL 1
1 MECHA UNIT (2/2)
SOL
HALF
GND
OUT
MODE
Cr
CN801 KPE12
RCP1090
2SA1309A
2SB1238X
2SD1858X
DTC124ES
1SEN
1CPM
1SOL
GNDD
2 MECHA UNIT (2/2)
REC.F
REC.R
CN851 KPE14
MECHA CONTROL 2
2SEN
2CPM
2SOL
MSO1
MSO0
MSO2
MSO3
X2CONT
CPU
IC901
PD5207A
S4
S3
S2
S1
S0
G0
G1
G2
G3
G4
G5
MTPS
SONG
2FWD
2REV
2REC
MTL
PS2ENA
PS1ENA
(DATA)
(CK)
2CPM
2SOL
2BIAS
2PB
SD
ENA/REQ
SCK
FLRST
Vcc
S5
S6
S7
S8
S9
S10
S13
1REV
1FWD
TEST
NC
GND
OSC1
OSC2
RESET
KIN3
KIN2
KIN1
KIN0
1SEN
2SEN
X2CONT
1SOL
1CPM
VRFR
PWM
ENCODE
RMUT
LMUT
Q917
Q909 DTC124ES
IC1006 NJM7812FA
TRANSISTOR UNIT
J1001A
J1001
VA12
VC17
IC1003 NJM7805FA
IC1005 NJM7812FA
IC1007 NJM7905FA
VC12
VC5V
VE5V
GNDD
GNDA
RESET
Q1002
Q1003
Q1004
GSH
Q905
Q906
Q907
Q908
DISPLAY UNIT(RWZ2707)
CN904
CN5404
S1201 ASES
S1204 MUTE
S1202 HIGH
S1205 PAUSE
S1203 NORM
S1206 REC
FINE
NORM
COPY
1REV
1FWD
2REV
2FWD
S1406
S1306
OPERATE1 UNIT
CN902
J902
OPERATE2 UNIT
CN903
J903
TO AMPLIFIER
CN301
52004-1510

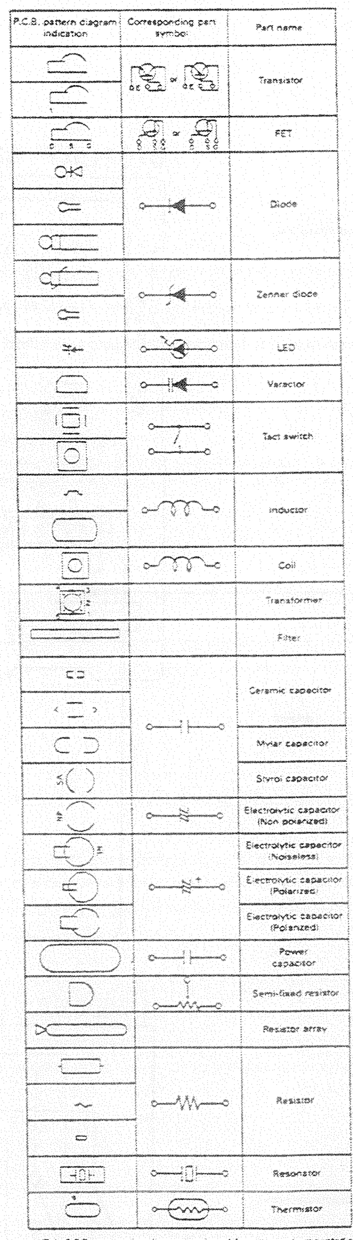
[NOTE]
1. Unspecified NPN transistors are 2SC3311A.
2. Unspecified PNP transistors are 2SA1309A.
3. Unspecified diodes ars 1SS245.
4. Unspecified capacitors ars CFTXA.
5. Unspecified semi-fixed resistors ars TB.

———— :PLAYBACK SIGNAL
- - - - :RECORDING SIGNAL

- View from component side

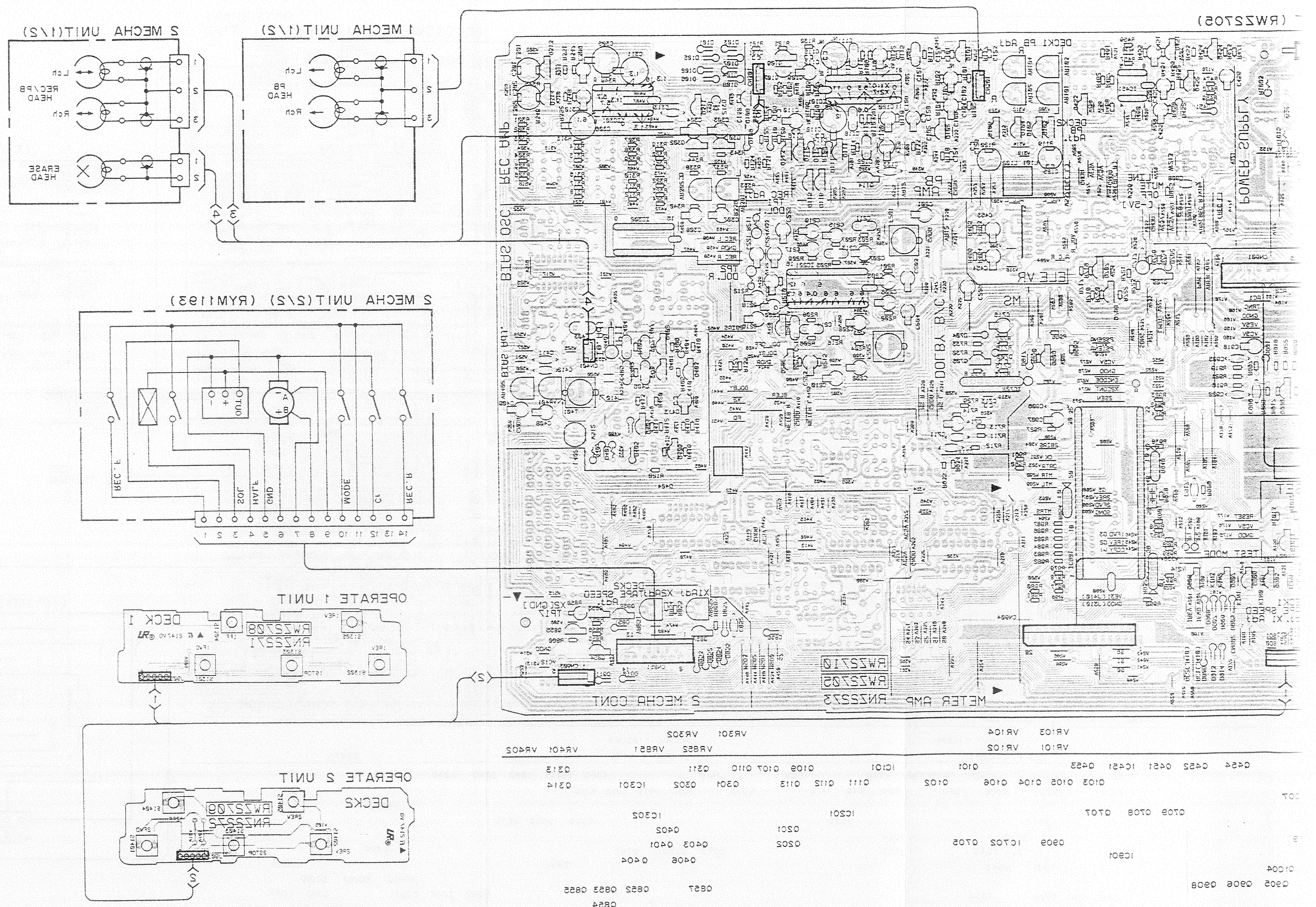

TRANSISTOR UNIT
MAIN UNIT (RWZ2705)
DISPLAY UNIT (RWZ2707)
RWZ2707
RNZ2270
1 MECHA UNIT(2/2) (RYM1191)
TO AMPLIFIER
POWER SUPPLY
INTERFACE
RESET
TEST MODE
MUTE
DECK1 PB Adj
PB AMP
REC AMP
BIAS OSC
BIAS Adj
DOLBY B/C
MS
TELE VR
DECK1 TAPE SPEED Adj X1
DECK2 TAPE SPEED Adj
X1Adj
X2Adj
X2(GND)
TP17
TP2 DOL R
1 MECHA CONT
2 MECHA CONT
METER AMP
RWZ2710
RWZ2705
RNZ2273
NORM
HIGH
PAUSE
REC
REV MODE
DOLBY NR
Cr
MODE
GND
HALF
SOL
12
11
10
9
8
7
6
5
4
3
2
1
1 ME
2 MEC
REC R
VR802
VR103 VR104
VR101 VR102
VR301 VR302
VR852 VR851
VR401 VR402
Q454 Q452 Q451 IC451 Q453
Q103 Q105 Q104 Q106
Q101 Q102
IC101
Q111 Q112 IC113
Q109 Q107 Q110
Q311
Q301 Q302 IC301
Q313
Q314
IC1007
IC1003
Q709 Q708 Q707
IC201
Q201
Q202
IC302
Q402
Q403 Q401
Q406 Q404
Q999
Q909 IC702 Q705
IC901
IC1005
Q1002 Q1003 Q1004
Q804 Q805
Q905 Q906 Q908
Q807 Q802 Q803
Q857
Q852 Q853 Q855
Q854
A
B
C
D


UNIT (RWZ2705)
DECK1 PB Adj
POWER SUPPLY
INTERFACE
RESET
TEST MODE
DECK1 TAPE SPEED Adj.X1 Adj
TELE VR
MS
PB AMP
REC R
DOLBY B/C
METER R
DOLBY
REC AMP
BIAS OSC
BIAS Adj
TP2
DOL.R
X1Adj X2Adj
DECK2 TAPE SPEED Adj
X2[GND]
TP17
RWZ2710
RWZ2705
METER AMP RNZ2273
2 MECHA CONT
1 MECHA UNIT(1/2)
Lch
PB HEAD
Rch
2 MECHA UNIT(1/2)
Lch
REC/PB HEAD
Rch
ERASE HEAD
2 MECHA UNIT(2/2) (RYM1193)
OUT
REC.R
Cr
MODE
GND
HALF
SOL
REC.F
14 13 12 11 10 9 8 7 6 5 4 3 2 1
OPERATE 1 UNIT
DECK 1
RWZ2708
RNZ2271
1REV
1FF
1FWD
1STOP
OPERATE 2 UNIT
DECK2
RWZ2709
RNZ2272
2REV
2FF
2FWD
2STOP
1
2
3
4
VR103 VR104
VR101 VR102
VR301 VR302
VR852 VR851
VR401 VR402
Q454 Q452 Q451 IC451 Q453
Q103 Q105 Q104 Q106
Q101
Q102
IC101
Q111 Q112 Q113
Q109 Q107 Q110
Q311
Q301 Q302 IC301
Q313
Q314
IC1007
Q709 Q708 Q707
IC201
IC302
Q201
Q202
Q402
Q403 Q401
Q406 Q404
Q999
Q909 IC702 Q705
IC901
Q1003 Q1004
Q905 Q906 Q908
Q803
Q857
Q852 Q853 Q855
Q854

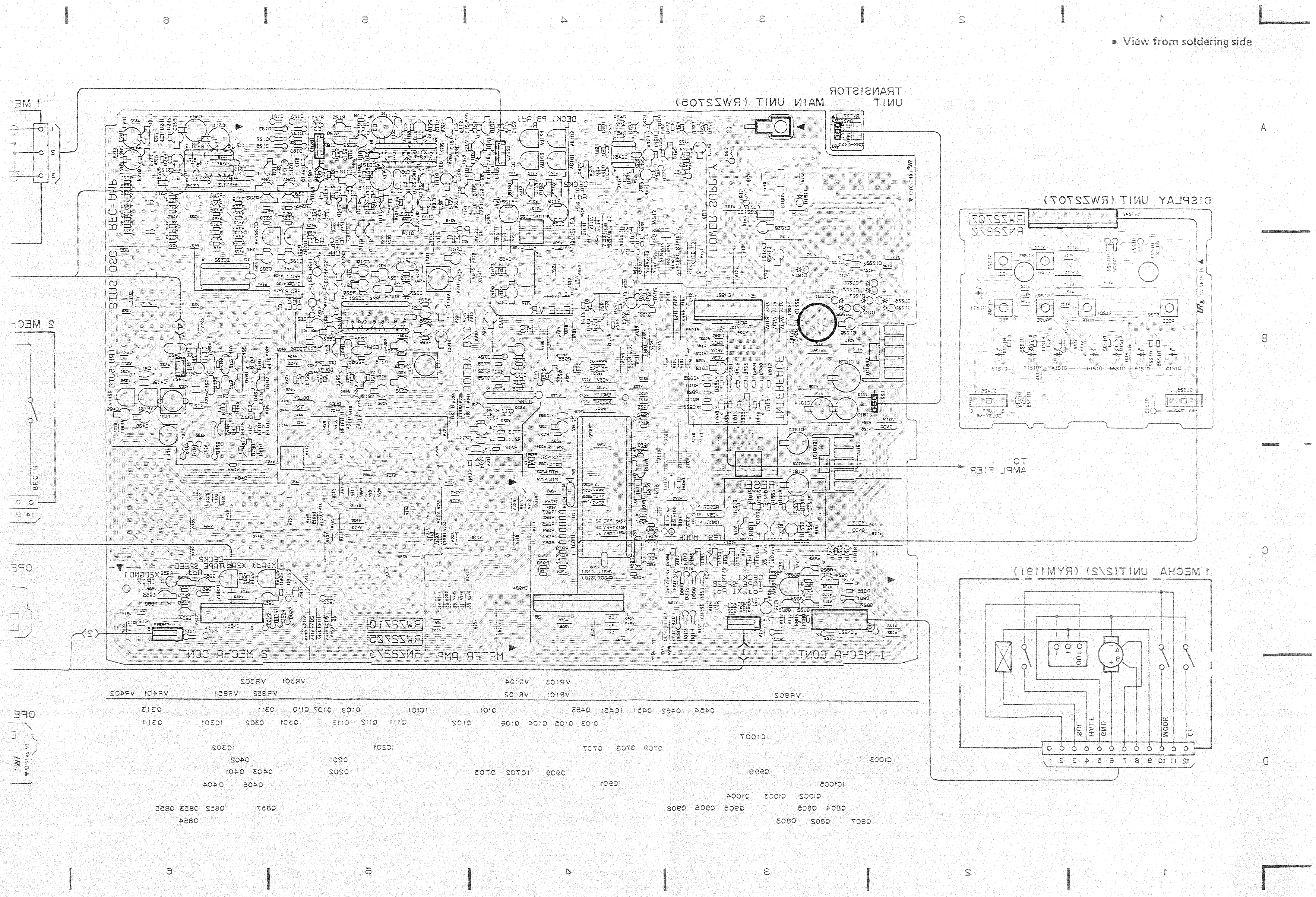


P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

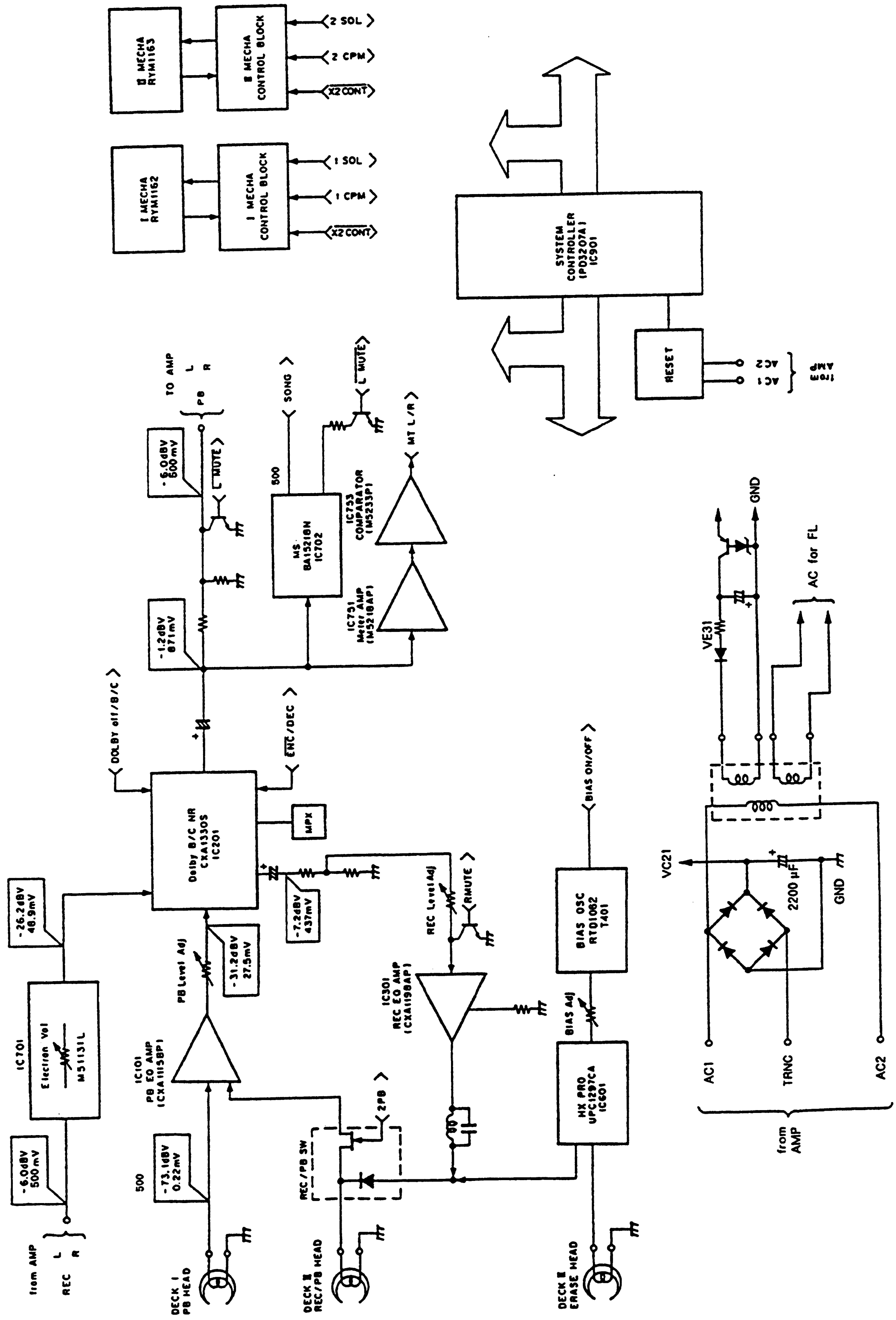

2 MECHA UNIT(1/2)
REC/PB HEAD
ERASE HEAD
Lch
Rch
1 MECHA UNIT(1/2)
PB HEAD
2 MECHA UNIT(2/2) (RYM1193)
REC F
SOL
HALF
GND
MODE
C1
REC R
OPERATE 1 UNIT
DECK 1
RWZ2708
RNZ2271
OPERATE 2 UNIT
DECK2
RWZ2709
RNZ2272
(RWZ2705)
REC AMP
BIAS OSC
DOLBY B/C
ELE VR
POWER SUPPLY
DECK1 PB AMP
TEST MODE
2 MECHA CONT
METER AMP
RNZ2273
RWZ2710
RWZ2705

- View from soldering side

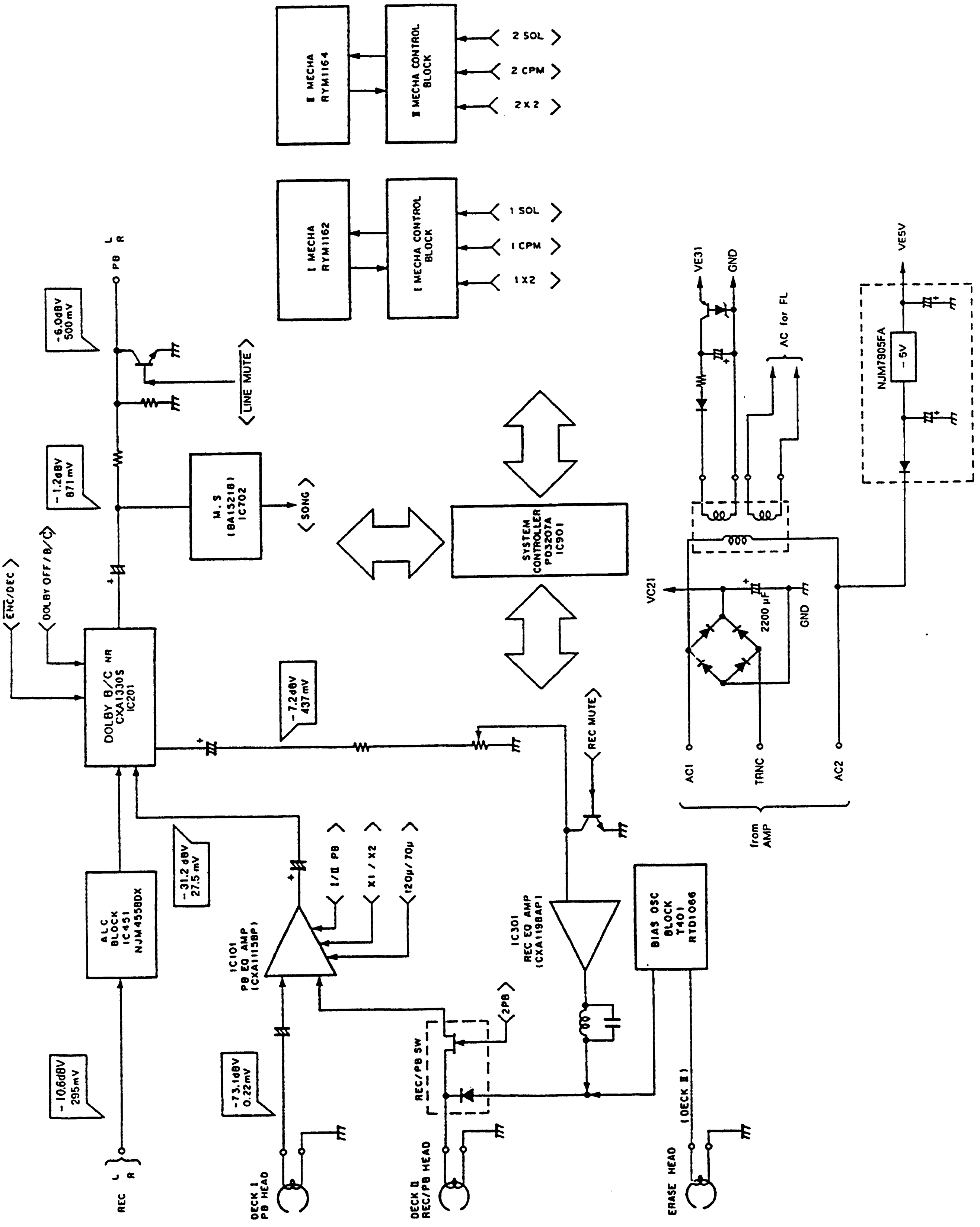

6
5
4
3
2
1
A
B
C
D
TRANSISTOR UNIT
MAIN UNIT (RWZ2705)
DISPLAY UNIT (RWZ2707)
RWZ2707
RNZ2270
TO AMPLIFIER
1 MECHA UNIT(2/2) (RYM1191)
POWER SUPPLY
INTERFACE
RESET
TEST MODE
REC AMP
BIAS OSC
BIAS ADJ
DOLBY B/C
LEVEL VR
DECK1 PB ADJ
DECK2
LINE
1 MECHA CONT
2 MECHA CONT
METER AMP
RWZ2710
RWZ2705
RNZ2273
DECK1 TAPE SPEED ADJ
DECK2 TAPE SPEED ADJ
1 MEC
2 MECH
REC SW
OPE
SOL
HALF
GND
MODE
REC
PAUSE
MUTE
RMS
HIGH
NORM
REV MODE
DOLBY NR

4. BLOCK DIAGRAM

4.1 FOR CT-J410WR


II MECHA
RYM1163
II MECHA CONTROL BLOCK
2 SOL
2 CPM
X2 CONT
I MECHA
RYM1162
I MECHA CONTROL BLOCK
1 SOL
1 CPM
X2 CONT
SYSTEM CONTROLLER
(PD3207A)
IC901
RESET
AC1
AC2
from AMP
TO AMP
PB
L
R
-6.0dBV
500mV
L MUTE
SONG
500
MS
BA15218N
IC702
L MUTE
MT L/R
IC753
COMPARATOR
(M5233P)
IC751
Meter AMP
(M5218AP)
-1.2dBV
871mV
DOLBY off/B/C
ENC/DEC
Dolby B/C NR
CXA1330S
IC201
MPX
-26.2dBV
48.9mV
-7.2dBV
437mV
-31.2dBV
27.5mV
PB Level Adj
REC Level Adj
RMUTE
BIAS ON/OFF
BIAS OSC
RT01062
T401
BIAS Adj
HX PRO
UPC1297CA
IC601
IC701
Electron Vol
M51131L
-6.0dBV
500mV
from AMP
REC
L
R
IC101
PB EQ AMP
(CXA1158P)
500
-73.1dBV
0.22mV
IC301
REC EQ AMP
(CXA1198AP)
2PB
REC/PB SW
DECK I
PB HEAD
DECK II
REC/PB HEAD
DECK II
ERASE HEAD
GND
AC for FL
VE31
VC21
2200 µF
GND
AC1
TRNC
AC2
from AMP

4.2 FOR CT-J310WR


II MECHA
RYM1164
II MECHA CONTROL BLOCK
2 SOL
2 CPM
2X2
I MECHA
RYM1162
I MECHA CONTROL BLOCK
1 SOL
1 CPM
1X2
PB L R
-6.0dBV
500mV
LINE MUTE
-1.2dBV
871mV
M.S
(BA15218)
IC702
SONG
SYSTEM CONTROLLER
PD3207A
IC901
ENC/DEC
DOLBY OFF/B/C
DOLBY B/C NR
CXA1330S
IC201
-7.2dBV
437mV
REC MUTE
-31.2dBV
27.5mV
ALC BLOCK
IC451
NJM4558DX
I/II PB
X1/X2
120μ/70μ
IC101
PB EQ AMP
(CXA1115BP)
IC301
REC EQ AMP
(CXA1198AP)
BIAS OSC BLOCK
T401
RTD1066
2PB
REC/PB SW
-10.6dBV
295mV
-73.1dBV
0.22mV
REC L R
DECK I
PB HEAD
DECK II
REC/PB HEAD
(DECK II)
ERASE HEAD
VE31
GND
AC for FL
VE5V
NJM7905FA
-5V
VC21
2200μF
GND
AC1
TRNC
AC2
from AMP

5. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10¹ → 561 ································ RD1/8PM 5 6 1 J
47k Ω → 47 × 10³ → 473 ································ RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ··· RN2H 0 R 5 K
1 Ω → 010 ··· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 ································ RN1/4PC 5 6 2 1 F

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
		MAIN UNIT	RWZ2710 (CT-J410WR) RWZ2705 (CT-J310WR)
NSP		TRANSISTOR UNIT	RWZ2711
		DISPLAY UNIT	RWZ2712 (CT-J410WR) RWZ2707 (CT-J310WR)
NSP		OPERATE 1 UNIT	RWZ2713 (CT-J410WR)
NSP			RWZ2708 (CT-J310WR)
NSP		OPERATE 2 UNIT	RWZ2714 (CT-J410WR)
NSP			RWZ2709 (CT-J310WR)

MAIN UNIT (CT-J410WR)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC702		BA15218N
	IC101		CXA1115BP
	IC301		CXA1198AP
	IC201		CXA1330S
	IC701		M51131L
	IC751		M5218AP
	IC753		M5233P
⚠	IC1005		NJM7812FA
⚠	IC1003		NJM78M05FA
	IC901		PD3207A
	IC752		TC4050BP
	IC302		TC4051BP
	IC601		UPC1297CA
	Q1001		2SA1283
	Q601, Q602, Q802, Q852, Q1002		2SA1309A
	Q404, Q804, Q854		2SB1238X
	Q401–Q403		2SC1815
	Q109, Q110, Q301, Q302, Q405–Q407, Q702, Q703, Q999, Q1003, Q1004		2SC3311A
	Q807, Q857		2SD1858X
	Q707, Q708		2SD2144S
	Q107, Q108		2SK373
	Q313, Q314, Q758		DTC114TS
	Q705		DTC124TS
	Q115, Q311, Q709		XDA124ES
	Q103–Q106, Q704, Q757, Q905–Q908		XDC114ES
	Q101, Q102, Q111–Q114, Q116, Q201, Q604, Q701, Q803, Q805, Q853, Q855, Q909		XDC124ES
⚠	D312, D1001–D1008, D1011		1SR35-100AVL
	D401, D801, D807, D851		1SS252
	D101–D112, D405, D601, D602, D702–D704, D751–D758, D802, D803, D806, D852–D857, D901, D905–D908, D910, D911, D913, D914, D917, D1012		1SS254
⚠	D1009		MTZJ27B
⚠	D1010, D1013		MTZJ5.1B

COILS, TRANSFORMERS AND FILTERS

Mark	No.	Description	Part No.
	L402		LFA121K
	L601, L602	(L=4.6MH, Q=25, F=105KH)	RTD1053
	L401		RTD1062
	L301, L302	(L=10MH(79.6KHZ), Q=25)	RTF1004
	L101, L102	(L=5.6MH(252KHZ), Q=30)	RTF1022
	F201, F202		RTF1062
⚠	T1001		RTT1220

CAPACITORS

Mark	No.	Description	Part No.
	C609, C610		CCCSL101K500
	C131, C132		CCPUSL100J50
	C107-110		CEANL100M16
	C111–C112		CEANL101M10
	C201, C202, C207, C208, C453, C454, C755, C756		CEAS010M50
	C205, C206, C223, C224, C615, C617, C701, C702, C918, C1022		CEAS100M50
	C1012, C1014		CEAS101M25
	C1017, C1019		CEAS101M50
	C1008		CEAS102M25
	C1009		CEAS221M10
	C1013, C1015		CEAS221M16

Mark	No.	Description	Part No.
	C1006		CEAS222M25
	C203, C204, C309, C310		CEAS2R2M50
	C221, C222		CEAS330M16
	C311		CEAS331M16
	C129, C130, C225, C408–C410, C703, C704, C706, C753, C754, C907, C1025		CEAS470M16
	C1018		CEAS470M50
	C305, C306		CEAS471M10
	C119, C120, C209, C210, C303, C304, C616, C705, C1023		CEAS4R7M50
	C217, C218, C716		CEASR22M50
	C215, C216, C219, C220		CEASR33M50
	C307, C308, C714, C757, C758		CEASR47M50
	C601, C602		CFTXA103J50
	C211–C214		CFTXA222J50
	C121, C122, C404, C605, C606		CFTXA223J50
	C405–C407		CFTXA332J50
	C117, C118		CFTXA822J50
	C133, C711, C712		CGCYX104K25
	C614		CGCYX104M25
	C607, C608, C760, C801, C1001, C1002		CGCYX473K25
	C751, C752		CGCYX683K25
	C725, C726, C905, C919, C920, C999		CKCYB102K50
	C707–C709		CKCKY103Z50
	C710, C717, C906, C908, C917, C1026–C1028		CKCYF103Z50
	C313, C759, C1020, C1021		CKCYF473Z50
	C113–C116, C613, C713		CKPUYB101K50
	C105, C106		CKPUYB102K50
	C301, C302		CKPUYB221K50
	C715		CKPUYB271K50
	C103, C104, C125, C126		CKPUYB391K50
	C123, C124		CKPUYB471K50
	C101, C102		CKPUYB561K50
	C127, C128, C802, C852		CKPUYB681K50
	C603, C604		CKPUYB821K50
	C403		CQPA752J100
	C611, C612	(C=430P, V(DC)=500)	RCG1005

RESISTORS

Mark	No.	Description	Part No.
	R949, R954	(R=22K, W=1, A=J)	RA4T223J
	R932		RA5T104J
	R763	(R=22K, W=1, A=J)	RA5T223J
	R211, R212	(R=4.7K, W=1/6, A=J)	RCN1028
	R404	(R=5R6, W=1/2, A=J)	RCN1033
	R1015	(R=2700, W=1/2, A=J)	RCN1046
	R407	(R=560, W=1/2, A=J)	RCN1061
	R1003	(R=562, W=1/2, A=J)	RCN1062
	R422	(R=9R1, W=1/4, A=J)	RCN1063
	VR851	(R=10K, W=0.1)	RCP1045
	VR101–VR104, VR301, VR302, VR601, VR602	(R=22K, W=0.1)	RCP1046
	VR802, VR852	(R=15K, W=0.1)	RCP1090
	R765	(R=11K/22K, N=10)	RCX1020
	R401		RD1/2LF☐☐☐J
⚠	R1001	(R=47, W=1/4, A=J)	RFA1/4L☐☐☐J
	R1002	(R=1.5K, W=1, A=J)	RS1LMF☐☐☐J
	OTHER RESISTORS		RD1/6PM☐☐☐J

OTHERS

Mark	No.	Description	Part No.
	CN904	FFC CONNECTOR 30P	52045-3045
	CN801	CONNECTOR 12P	KPE12
	CN851	CONNECTOR 14P	KPE14
	X901	CERAMIC RESONATOR(4.19MHz)	VSS1014

MAIN UNIT (CT-J310WR)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC702		BA15218N
	IC101		CXA1115BP
	IC301		CXA1198AP
	IC201		CXA1330S
	IC451		NJM4558DX
⚠	IC1005		NJM7812FA
⚠	IC1003		NJM78M05FA
⚠	IC1007		NJM7905FA
	IC901		PD3207A
	IC302		TC4051BP
	Q802, Q852, Q1002		2SA1309A
	Q404, Q804, Q854		2SB1238X
	Q453, Q454		2SC1740SLN
	Q109, Q110, Q301, Q302, Q406, Q451, Q452,, Q999, Q1003, Q1004		2SC3311A
	Q401, Q402		2SD1302
	Q807, Q857		2SD1858X
	Q403, Q707, Q708		2SD2144S
	Q107, Q108		2SK373
	Q313, Q314		DTC114TS
	Q705		DTC124TS
	Q115, Q311, Q709		XDA124ES
	Q103–Q106, Q905–Q908		XDC114ES
	Q101, Q102, Q111–Q114, Q116, Q201, Q803, Q805, Q853, Q855, Q909		XDC124ES
⚠	D312, D1001–D1005, D1007, D1008, D1014		1SR35-100AVL
	D801, D807, D851		1SS252
	D101–D112, D401, D404, D405, D451, D452, D702–D704, D802, D803, D806, D852–D857, D901, D905–D908, D910, D911, D913, D914, D917, D1012		1SS254

COILS, TORANSFORMERS AND FILTERS

Mark	No.	Description	Part No.
	T401		ATX-043
	L402		LFA121K
	L301, L302	(10MH(79.6KHZ), Q=25)	RTF1004
	L101, L102	(5.6MH(252KHZ), Q=30)	RTF1022
	F201, F202		RTF1062

CAPACITORS

Mark	No.	Description	Part No.
	C411, C412		CCCSL101K500
	C131, C132		CCPUSL100J50
	C107–C110		CEANL100M16
	C111, C112		CEANL101M10
	C201, C202, C207, C208, C451, C452		CEAS010M50
	C205, C206, C223, C224, C453–C455, C918, C1022, C1030		CEAS100M50
	C1012, C1014		CEAS101M25
	C1029		CEAS101M50
	C1008		CEAS102M25
	C1009		CEAS221M10
	C1013, C1015		CEAS221M16
	C1006		CEAS222M25
	C203, C204, C309, C310		CEAS2R2M50
	C221, C222		CEAS330M16
	C311		CEAS331M16
	C129, C130, C225, C408–C410, C907		CEAS470M16
	C305, C306		CEAS471M10
	C119, C120, C209, C210, C303, C304, C1023		CEAS4R7M50
	C217, C218, C716		CEASR22M50
	C215, C216, C219, C220, C456		CEASR33M50
	C714		CEASR47M50
	C307, C308		CEASR68M50
	C406, C407		CFTXA103J50
	C404		CFTXA123J50
	C405		CFTXA153J50
	C211–C214		CFTXA222J50
	C121, C122		CFTXA223J50
	C117, C118		CFTXA822J50
	C133, C711, C712		CGCYX104K25
	C801, C1001, C1002		CGCYX473K25
	C905, C919, C920, C999		CKCYB102K50
	C717, C906, C908, C917		CKCYF103Z50
	C313		CKCYF473Z50
	C113–C116, C713		CKPUYB101K50
	C105, C106		CKPUYB102K50
	C301, C302, C413		CKPUYB221K50
	C715		CKPUYB271K50
	C103, C104, C125, C126		CKPUYB391K50
	C123, C124		CKPUYB471K50
	C101, C102		CKPUYB561K50
	C127, C128, C802, C852		CKPUYB681K50
	C403		CQPA162J100

RESISTORS

Mark	No.	Description	Part No.
	R949, R954	(R=22K, W=1, A=J)	RA4T223J
	R932	(R=100K, W=1, A=J)	RA5T104J
	R408	(R=120, W=1/2, A=J)	PRCN1020
	R404	(R=4.7, W=1/2, A=J)	PRCN1022
	R407	(R=160, W=1/2, A=J)	PRCN1026
	R211, R212	(R=4.7K, W=1/6, A=J)	RCN1028
	VR851	(R=10K, W=0.1)	RCP1045
	VR101–VR104, VR301, VR302	(R=22K, W= 0.1)	RCP1046
	VR401, VR402	(R=220K, W=0.1)	RCP1049
	VR802, VR852	(R=15K, W=0.1)	RCP1090
	R401		RD1/2LF010J
	OTHER RESISTORS		RD1/6PM☐☐☐J

OTHERS

Mark	No.	Description	Part No.
	CN904	FFC CONNECTOR 28P	52045-2845
	CN801	CONNECTOR 12P	KPE12
	CN851	CONNECTOR 14P	KPE14
	X901	CERAMIC RESONATOR(4.19MHz)	VSS1014

TRANSISTOR UNIT

SEMICONDUCTORS

Mark	No.	Description	Part No.
⚠	IC1006		NJM7812FA

DISPLAY UNIT (CT-J410WR)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	D1201–D1207, D1303		1SS254
	D1211		SEL6C10R

SWITCHES

Mark	No.	Description	Part No.
	S1201–S1206, S1208, S1209		RSG1033
	S1211, S1212		RSH1041

RESISTORS

Mark	No.	Description	Part No.
	VR1201	(R=100KB, P=0.05W)	RCW1009
	OTHER RESISTORS		RD1/6PM☐☐☐J

OTHERS

Mark	No.	Description	Part No.
	CN9040	FFC CONNECTOR 30P	52045-3045
	V1201		RAW1097
	FL HOLDER		RNK1755

DISPLAY UNIT (CT-J310WR)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	D1201–D1203, D1205, D1206, D1213		1SS254
	D1215–D1218		SEL6410E
	D1211, D1214, D1219, D1220		SEL6C10R

SWITCHES

Mark	No.	Description	Part No.
	S1201–S1206		RSG1033
	S1306, S1406		RSH1041

RESISTORS

Mark	No.	Description	Part No.
	ALL RESISTORS		RD1/6PM☐☐☐J

OTHERS

Mark	No.	Description	Part No.
	CN9040	FFC CONNECTOR 28P	52045-2845

OPERATE 1 UNIT

SEMICONDUCTORS

Mark	No.	Description	Part No.
	D1301, D1302		SEL6410E (CT-J410WR only)

SWITCHES

Mark	No.	Description	Part No.
	S1301–S1305		RSG1033

RESISTORS

Mark	No.	Description	Part No.
	R1301, R1302		RD1/6PM☐☐☐J (CT-J410WR only)

OPERATE 2 UNIT

SEMICONDUCTORS

Mark	No.	Description	Part No.
	D1401, D1402		SEL6410E (CT-J410WR only)

RESISTORS

Mark	No.	Description	Part No.
	R1401, R1402		RD1/6PM☐☐☐J (CT-J410WR only)

SWITCHES

Mark	No.	Description	Part No.
	S1401–S1405		RSG1033

6. ADJUSTMENTS

6.1 MECHANICAL ADJUSTMENT

These adjustments must be performed in TEST MODE
- Entering the TEST MODE
  Set the Reverse Mode Switch to ⊂⊃ , and short the TEST MODE jumper wire.
- Releasing the TEST MODE
  Press the STOP keys of DECKs I and II simultaneously.

1. Tape Speed Adjustment and Check

No.	Deck	Mode	Test tape	Adjusting points	Specifications/Ratings (playback frequency)	Remarks
1	I	Normal speed PLAY	STD-301 (3 kHz)	Play back for 1 minute and then press the FF or REW key. *1		
2		Double speed PLAY		check	6000 Hz ± 600 Hz (Pins ⑫ and ⑬ of CN901)	
3		Normal speed PLAY		Press the FF or REW key after checking.		
4	II			Play back for 1 minute and then press the FF or REW key. *1		
5		Double speed PLAY		VR851	Within ± 10 Hz of step 2 (deck I) check value. (CN901 −⑫, ⑬)	
6		Normal speed PLAY		Press the FF or REW key after checking.		
7				VR852	3020 Hz ± 5 Hz (Pins ⑫ and ⑬ of CN901)	
8	I			VR802	Within ± 5 Hz of step 7 (deck II) adjustment value.	

*1: If the FF or REW key is pressed during PLAY, double speed mode is selected.

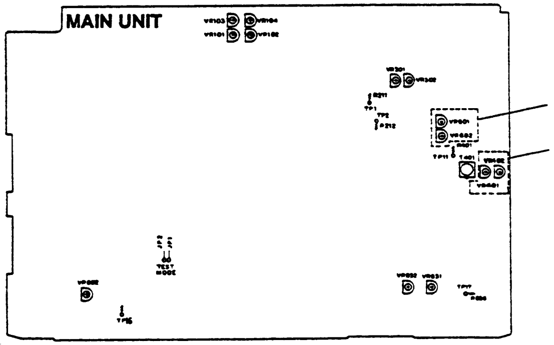


Fig. 6–1 Adjusting points

- Door damping check and adjustment

1. When assembling the front panel attach the door spring to the position (a) according to fig. 6–2, and stand the front panel assembly straight up as shown in fig. 6–3.
2. Open the doors of DECK I and DECK II simultaneously, and when one of the doors is fully opend, confirm that the disparity between the two doors is within 15 mm.
3. If the specification described in [illegible] is not satisfied, change the door spring position as follows and ac[illegible]
- When the door of DECK I opens slower than the one of DECK II: Change the DECK I door spring to position (b).
- When the door of DECK I opens faster than the one of DECK II: Change the DECK II door spring to position (b).
  (Basically adjust the door which opens slower to the faster one.)

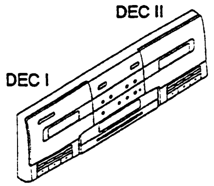


Fig. 6–2

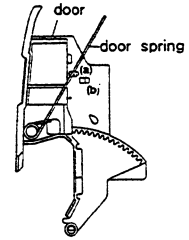


Fig. 6–3

6.2 ELECTRICAL ADJUSTMENTS

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0 dBV=1 Vrms.
5. Connect a 50 kΩ (or between 47k to 52 kΩ) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Test Tapes

STD–331E	: Playback adjustments (See Fig. 6–4)
STD–631	: NORMAL blank tape
STD–621	: CrO2 blank tape
STD–610	: METAL blank tape

※ As the reference recording level is 250 nwb/m for STD–331E, the recording level will be higher by 4 dB for STD–331B (160 nwb/m). When adjusting, pay carefull attention to the type of tape used.

List of Adjustments

Playback sections
1. Head azimuth adjustment.
2. Playback level adjustment.

Recording sections
1. Bias oscillator adjustment.
2. Recording bias adjustment.
3. Recording level adjustment.

NOTE: This unit has an automatic tape selection feature.

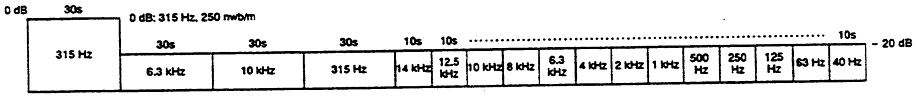


Fig. 6–4 Constants of the test tape STD–331E

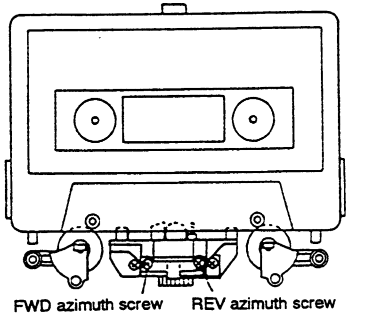


Fig. 6–5 Head azimuth adjustment

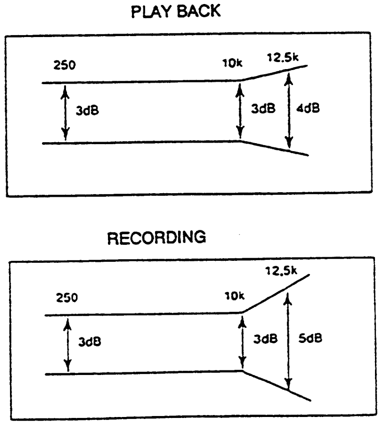


Fig. 6–6 Frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR103, VR104 (Deck I) or VR101, VR102 (Deck II) to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/–20 dB section of STD–331E test tape.	Head azimuth adjustment screw. (See Fig. 6–5)	Pins ⑫ and ⑬ of CN901	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback Level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD–331E test tape.	Deck I	VR103 (Lch) VR104 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	–6.7 dBV (CT–J410WR/J310WR)	
			Deck II	VR101 (Lch) VR102 (Rch)			

RECORDING SECTION

1. Bias Oscillator Frequency Adjustment (CT-J410WR)

- Adjust the bias oscillator with checks set to recording mode simultaneously. ← (Double R/P only)

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD–610 test tape with no input signal.	Deck II	T401	TP. 11	105 ± 0.3 kHz	

2. Recording Bias Adjustment

- Adjust the bias oscillator with decks I and II set to recording mode independently. ← (Double R/P only)
- After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.					
2.	REC	Record the 315 Hz and 6.3 kHz signals at –20 dB input level and playback.	Deck II	VR601 (Lch) VR602 (Rch) (CT–J410WR) VR401 (Lch) VR402 (Rch) (CT–J310WR)	Pins ⑫ and ⑬ of CN901	Repeatedly record, playback and adjust so that the plyaback level of 6.3 kHz signal becomes +0.5 dB ± 0.5 dB when compared with the 315 Hz signal.	

3. Recording Level Adjustment

- Adjust the bias oscillator with decks I and II set to recording mode independently. ← (Double R/P only)

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.					
2.	REC/ PAUSE	Apply a 315 Hz/–4 dB signal to the line input terminals, load the STD–631 test tape.	REC level control volume		TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBV (CT–J410WR/J310WR)	
3	STOP	Set the DOLBY NR switch to the ON position. (DOLBY B)					
4.	REC/ PLAY	Record the above signal onto the STD–631 test tape, and playback.	Deck II	VR301 (Lch) VR302 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes –11.2 dBV (CT–J410WR/J310WR)	
5.	STOP	Set the TAPE SELECTOR switch to the CrO2 position.					
6.	REC/ PLAY	Record the above signal onto the STD–621 test tape, and playback.	Check		TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBV ± 1.5 dB (CT–J410WR/J310WR)	
7.	STOP	Set the TAPE SELECTOR switch to the METAL position.					
8.	REC/ PLAY	Record the above signal onto the STD–610 test tape, and playback.	Check		TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBV ± 1.5 dB (CT–J410WR/J310WR)	

7. TEST MODE

1 Entering the Test Mode

Supply the power with Pin 54 of the CPU (PD 3207A) connected to +5V.

2 Test Mode Operations

The BLE/SKIP LED will flicker while the test mode is operating, indicating that test mode is being set. During REC and REC PAUSE, the LINE MUTE opens in the same way as a deck sold separately.
Moreover, as the 5 seconds key mask immediately after the power is supplied will not be performed, test mode operations can be started immediately after mecha initialization.

(a) FL Check (CT-J410WR)
After the CPU RESET is released, the FL becomes a fully lighted display with only half of the luminance. As a result, disconnections and soldered bridges (the luminance of the bridge section will be normal) can be checked.
After mecha initialization has been completed, it can be returned to the normal display using any key input.

(b) Bus Port Operation Check
When the ENA/REQ pin (Pin 29) is set to "L", the SD pin (Pin 28) outputs the reversed level against the input level ("H" or "L") of the SCK pin (Pin 30).

ENA/REQ (29 pin)	SCK (30 pin)	SD (28 pin)
H	—	—
L	L	H
L	H	L

(c) Electronic VR (M51131L) Operation and ASES LED Checks Using the Reverse Mode
CT-J410WR switches the attenuation amount of M51131L when the reverse mode switches are used. CT-J310WR lights up the ASES LED.

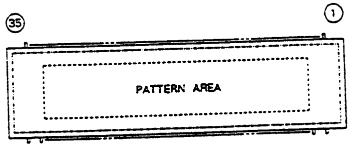
Reverse Mode SW	CT-J410WR	CT-J310WR
	Attenuation Amount (dB)	ASES LED
⇄	-30	NORM LED lights up.
⊃	Adjustment can be made with REC VR.	LED turns off.
⟲	-1	FINE LED lights up.

3 Releasing the Test Mode

The test mode will be released and normal operations and displays will be set, when the ASES key is turned on with both mechanisms in the stop condition, or when the CPU hardware is reset.

8. FL INFORMATION

- **V1201 (RAW1097)**

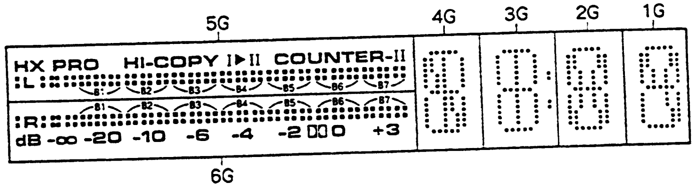


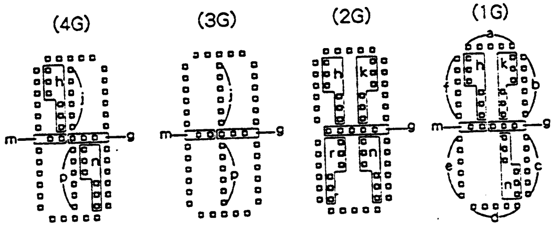
PIN CONNECTION

PIN NO.	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18
CONNECTION	F2	F2	NP	P13	6G	5G	4G	3G	2G	1G	P6	P7	P8	P9	NP	NP	NP	NP

PIN NO.	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	NP	NP	NP	NP	NP	P10	P5	P4	P3	P2	P1	P11	P12	P14	NP	F1	F1

Note: 1) F1, F2 ......Filament
2) NP ....No pin
3) NC ....No connection
4) 1G–6G ......Grid



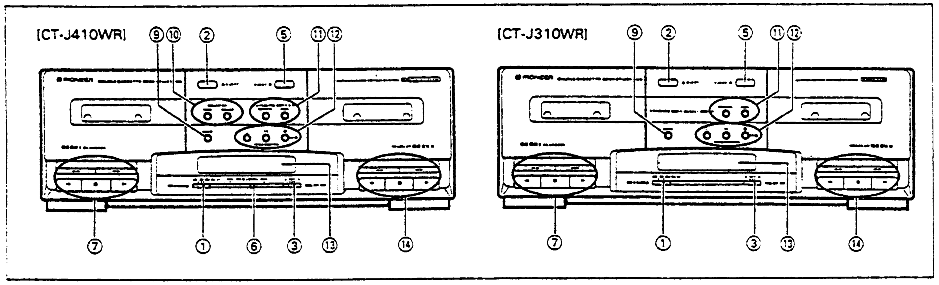


ANODE CONNECTION

	6G	5G	4G	3G	2G	1G
P1	B1	B1	a	a	a	a
P2	B2	B2	b	b	b	b
P3	B3	B3	c	c	c	c
P4	B4	B4	d.	d	d	d
P5	B5	B5	e	e	e	e
P6	B6	B6	f	f	f	f
P7	B7	B7	g	g	g	g
P8	dB −∞ −20 −10 −6 −4 −2 0 +3	I	m	m	k, r	m
P9	—	COPY I▶II	j, p	j, p	h	h
P10	—	HI –	h, n	+	n	k
P11	—	—	—	—	—	n
P12	—	:R	:L	—	—	—	—
P13	—	HX PRO	—	—	—	—
P14	—	COUNTER – I	—		—	—

9. PANEL FACILITIES

FRONT PANEL FACILITIES



① REV (reverse) MODE switch

Use this to select tape travel direction during play and record.

⥂ : One-sided play and record.

⊃ : This enables auto reverse recording and auto reverse play. If you start with the tape running in reverse, only reverse play and recording are possible.

⊂⊃ (RELAY): This enables auto reverse recording and auto repeat playback.
The tape does not reverse if recording starts from the (◄) direction.
Select this position for DECK I and II relay play.

② Deck I EJECT button

Press to open the cassette door.

NOTE:
This button functions only when the power is turned on.

③ DOLBY* NR switch

Set this switch to B or C for recording with the built-in Dolby Noise Reduction system and for playback of tapes which have been recorded using the Dolby Noise Reduction system. For other tapes, set the DOLBY NR switch to OFF.

NOTE:
When playing back DOLBY NR-encoded tapes, always set this switch to the same position (B-type or C-type) used for recording.

*
- *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*
- *"DOLBY", the double-D symbol ꟷꟷ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

⑤ Deck II EJECT button

⑥ REC LEVEL control (CT-J410WR only)

Use to adjust the recording level. It adjusts the input signal level.

⑦ Deck I operation buttons

► (PLAY): For playing back a tape in the forward mode.
◄ (PLAY): For playing back a tape in the reverse mode.
■ (STOP): For stopping the tape.
►► (FAST): Fast forward in forward mode, rewind in reverse mode. Music search (MS) starts if this is pressed during playback.
◄◄ (FAST): Rewind in forward mode, fast forward in reverse mode. Music search (MS) starts if this is pressed during playback.

⑨ ASES button

This can be used when recording from a PD-J410/PD-J510/PD-J910M CD player or CLD-J910 CD CDV LD player. The A.S.E.S. (Auto Synchro Editing System) function automatically edits when recording from a CD to a tape.

⑩ COUNTER buttons (CT-J410WR only)

TIME: Use this to switch between tape counter number display and display of elapsed time.
The TIME counter operates only during playback and recording.
RESET: Use this to reset the tape counter display to 0000.

⑪ SYNCHRO COPY buttons

Used for tape copying.

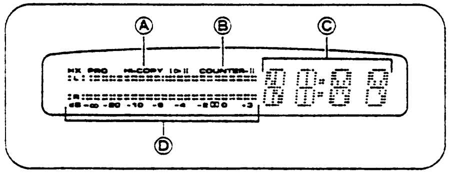
NORMAL: Copying from the deck I tape to the deck II tape at normal speed.
HIGH: Copying at about twice normal tape speed. (Copies can be made in about half the NORMAL time.)

⑫ DECK II CONTROL buttons/indicator

○ (MUTE): Used for creating a blank space during recording.
II (PAUSE): Temporarily stops tape travel.
● (REC): To set to recording standby mode. Recording begins when you press the play button (◄ or ►) or PAUSE (II) button.

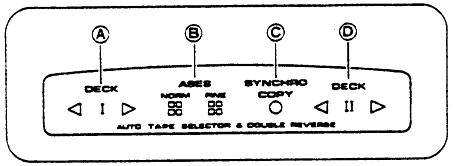
⑬ Display section

[CT-J410WR]



Ⓐ Lights during tape copy.
Ⓑ Indicates the deck (I or II) displaying counter indications.
Ⓒ Tape counter or time counter indication of elapsed tape time. During Music search operation, it indicates the number of tracks skipped. Also shows "ASES" and other indications.
Ⓓ Level meter
The ꟷꟷ mark displayed on the level meter is the Dolby NR system standard level. Indicates pattern during "ASES", etc.

[CT-J310WR]

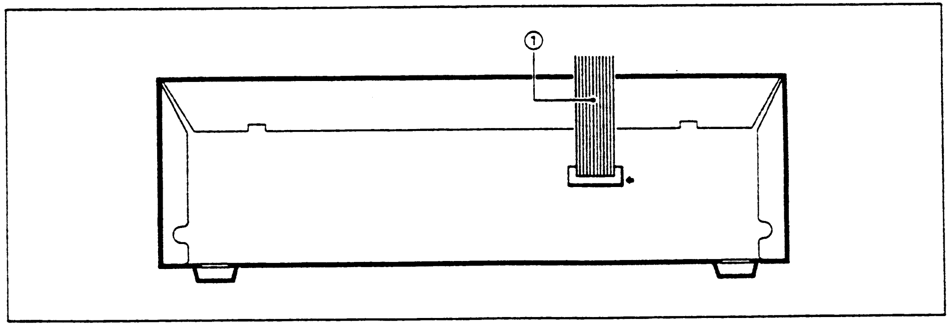


Ⓐ Displays tape travel direction of DECK I.
Ⓑ Lights during ASES MODE.
Ⓒ Lights during tape copy.
Ⓓ Displays tape travel direction of DECK II.

⑭ Deck II operation buttons

The same as the operation in ⑦ Deck I operation buttons.

REAR PANEL FACILITIES



* Illustration shows model CT-J310WR.

① CASSETTE DECK system cable

Connect to the TAPE DECK jack of the tuner control amplifier.

10. SPECIFICATION

[CT-J410WR]

Systems	4 track, 2-channel stereo
Heads	"Hard Permalloy" playback head x 1
	"Hard Permalloy" recording/playback head x 1
	"Ferrite" erasing head x 1
Motor	DC servo 2 speed motor x 2
Wow and flutter	±0.19 % (DIN)
	0.09 % (WRMS)
Fast winding Time	Approximately 120 seconds (C-60 tape)
Frequency Response (−20 dB recording):	
TYPE I (Normal)	25 Hz to 16,000 Hz ±6 dB
TYPE II (HIGH/CrO_2)	25 Hz to 16,000 Hz ±6 dB
TYPE IV (Metal)	25 Hz to 17,000 Hz ±6 dB
Signal-to-Noise ratio	
Dolby NR OFF	More than 58 dB
Noise Reduction Effect	
Dolby B type NR ON	More than 10 dB (at 5 kHz)
Dolby C type NR ON	More than 19 dB (at 5 kHz)
Harmonic distortion	No more than 1.0 % (−4 dB: 160 nwb/m)

Miscellaneous

Dimensions	360 (W) x 328 (D) x 120.5 (H) mm
Weight (without package)	3.9 kg

[CT-J310WR]

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	"Hard Permalloy" recording/playback head x 1
	"Ferrite" erasing head x 1
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Dolby NR OFF	More than 58 dB
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Dolby B type NR ON	More than 10 dB (at 5 kHz)
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Miscellaneous

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